Graduation Project Ideas

Proposed By

Faculty

Department of Information Systems

Project Title	Summer Training System
Proposed By	Dr Majed Alshamari
Brief Description	Here, at the college we have a summer training course for our students. Our students are usually assigned to be trained in industrial or governmental bodies for 12 weeks. The college needs an automated system can help us to manage this process automatically with an appropriate way.
Expected Outcomes	A web-based system should allow: 1. The students to register, check and report 2. The college to contact, announce, assign and report 3. The supervisors to follow up, report 4. The site-supervisors to report and update
Available Resources	A web-based system and the college will provide any resources which may be needed.
Required Resources	None
Skills Required	Programming skills such as ASP.net or other technology
Specialized Tutoring/Help to Be Provided by the Supervisor	No need

Project Title	A Web-based System to Support Teaching and Learning Outcomes
Proposed By	Dr. Md Maruf Hasan
Brief Description	ABET, NCAAA and other academic accreditation bodies adopt a pedagogical framework known as Outcome-based Teaching and Learning. In an Outcome-based curriculum, the design of syllabi, learning materials as well as assessment methods are guided by a set of predefined learning outcomes and relevant assessment criteria. In this project, the prospective students will investigate how to support outcome-based curriculum and assessment (i.e., accreditation activities) online and in a collaborative fashion. Familiarity with database and web based system development is essential.
Expected Outcomes	A web-based system
Available Resources	
Required Resources	Web Server, DBMS, Programming Tools
Skills Required	Programming, Database design and development , XML
Specialized Tutoring/Help to Be Provided by the Supervisor	Tutorial on Outcome-based curriculum and Web-based Application Development will be provided

Project Title	Design Patterns for Dependable Systems
Proposed By	Dr. Md Maruf Hasan
Brief Description	Software engineers face an uphill struggle over the increasing size and complexity of systems they are expected to develop, a problem only exacerbated by the increased use of software to control safety critical functions in automobiles, aviation and the rail industry to name a few. When developing such systems from scratch, the process can be highly error prone. Safety is critically influenced by architecture, an aspect of software development that has previously seen successful application of the patterns concept where design expertise is captured in a way in which it may be systematically reused. In this project, students will develop a pattern catalogue for real-time, embedded systems. Strong background of system analysis and design is necessary.
Expected Outcomes	Design-patterns for safety-critical system in various domain; Comparative analysis of existing design patterns; recommendations
Available Resources	
Required Resources	Literature on recent development in Design Patterns, Dependable system and traceability, safety-critical system; CASE tool
Skills Required	System Analysis and Design, Object-Oriented Software Engineering, knowledge of OO programming, UML and CASE tools
Specialized Tutoring/Help to Be Provided by the Supervisor	Tutorial and lecture on dependable system and design pattern and CASE tool

Project Title	Error-Driven Foreign Language Learning
Proposed By	Dr. Md Maruf Hasan
Brief Description	Learning a foreign language is painstaking. Foreign language learners with different background (different mother tongue and different level of proficiency, etc.) are prone to make different types of mistakes. In an error-driven foreign language learning framework, learner's errors are identified and annotated from a large number of people into a database. This collection is known as learner corpus. Patterns of errors and association of errors with learners can be easily identified using the annotated corpus and data mining algorithms (as it is done with shopping basket analysis in e-commerce to predict who is likely to buy which products). It is possible to teach foreign language effectively by identifying error-patterns in a learner and presenting the most relevant learning materials based on the mistakes a learner makes and likely to make. In this project, students will be required to collect and annotate errors in Arabic Speaker's English followed by subsequent error analysis using machine learning and data mining algorithms. The students will also develop a prototype to demonstrate the effectiveness of error driven learning. Strong background in AI, XML and programming is necessary.
Expected Outcomes	Preparation of data (corpus), Data Analysis, Prototype Applications
Available Resources	
Required Resources	Data Mining and Machine Learning Software (open source or free)
Skills Required	XML, AI, Data Mining, Algorithm development; data analysis, experimentation
Specialized Tutoring/Help to Be Provided by the Supervisor	Tutorial and lecture on natural language processing and data mining

Project Title	Taxi Dispatching System using Smartphone
Proposed By	Dr. Md Maruf Hasan
Brief Description	This project aims to develop a GPS-based application to facilitate Taxi dispatching (in Al Ahsa) using smartphone. An android application will send the caller's location to a web server and the server will find the nearest available taxi from its pool of registered taxi drivers using the driver's real-time location and status. Strong programming skill is necessary. Students will be given necessary training on location- aware smartphone application development.
Expected Outcomes	Andriod App and a Web-based system
Available Resources	Smartphone Application development Toolkit
Required Resources	
Skills Required	Strong programming skills, Database and algorithm design. AI techniques
Specialized Tutoring/Help to Be Provided by the Supervisor	Tutorial on location aware system development for android will be provided

Project Title	KFU Vendor Relationship Management System
Proposed By	Dr Mohamed Elhassan
Brief Description	King Faisal University(KFU VRM) is a web-based information system that can help the university administration to manage all relations and interactions with organizations that supply goods and/or services to KFU in order to maximize the value of those interactions. In practice, this system should provide more efficient and productive relationships with key vendors in order to uncover and realize new value and reduce risk.
Expected Outcomes	Web-based information system that support management of KFU vendor relationship
Available Resources	
Required Resources	
Skills Required	Systems analysis and design, database development, web application development/ programing
Specialized Tutoring/Help to Be Provided by the Supervisor	None

Project Title	Saudi Camel (Livestock) Resource Information System
Proposed By	Dr Mohamed Elhassan
Brief Description	An information management system that can help for the collection analysis of Saudi Camel resource related data and information. This includes records of camel types, populations, geographic distribution, production characteristics, genetics, breeding and feeding requirements, pricing and market information.
Expected Outcomes	Web-based information system that support management Saudi Camel resource data.
Available Resources	
Required Resources	
Skills Required	Systems analysis and design, database development, web application development/ programing.
Specialized Tutoring/Help to Be Provided by the Supervisor	None

Project Title	Code Snippet Manager
Proposed By	Dr. Mohammed Misbhauddin
Brief Description	Reusing code snippets is a popular practice among many developers. It is not copying or cheating when the author of the code snippet is the user himself or the code snippet is freely available on the web to be used by anyone under a GPL license. One major issue faced by developers when working with reusable code snippets is finding the right one at the right time. This project requires development of a cloud-based code snippet manager that allows coders to put in functions, classes or other snippets to save for later use. A major requirement is to identify and implement a framework that allows the coder to organize the code by type of snippet, language, interface availability and so on so that the coder can quickly look-up them in future. Tagging (like Delicious Bookmark Manager) can be used to enhance searchability of the code snippet. UI similar to that of web-board based websites such as Pinterest, Tumblr can be used to enhance the user experience.
Expected Outcomes	A complete web-based application with an aesthetic and easy to use and maintain GUI and a powerful backend that allows for fast searches.
Required Resources	The teams can make use of extensive HTML & CSS Frameworks available online (HTML5 Boilerplate, Twitter's Bootstrap) and JavaScript Libraries such as JQuery to accomplish the dynamism required by the application.
Skills Required	• HTML5, CSS3, JavaScript, Any Server-Side Scripting Language (PHP, Python, Ruby, ASP .Net) • Database Management System (MySQL, Postgre SQL)
Specialized Tutoring/Help to Be Provided by the Supervisor	None

Project Title	Faculty Content Management System
Proposed By	Dr. Mohammed Misbhauddin
Brief Description	Faculty members not only play a crucial role in developing the institution's education and research culture but also demonstrate the institution's capabilities and achievements to other institutions around the world. Information about faculty members, their complete and updated resume, updated teaching activities, abstracts of all publications and presentations, awards and achievements and so on should be made available on the web in order to improve communication and interaction with the global community of higher education as well as with competent students and faculty around the world. It is usually the responsibility of the webmaster to update this information on the web. But due to the constant changing nature of this information, it is really difficult to maintain up-to-date information about faculty members and their activities. Hence, an intuitive content management system that can be maintained by the faculty member themselves is a scalable solution to the issue mentioned above. A content management system allows the user/client of the system to change its structure and content without actually working on the code. Examples of CMSs include Wordpress, Drupal etc. In this project, the students will make use of the advanced techniques and frameworks provided by the latest web standards (HTML5, CSS3 and JavaScript) to create a web-based content management system that allows the faculty members to easily maintain their information on the web. This can be done either through on-page editing (possible with the use of the recent standards, AJAX and JQuery) or through an admin cPanel (a less desirable but common solution). This project will encourage faculty members to publish their scholarly and professional work openly on the web and participate effectively in building a culture that encourages sharing knowledge on the web and enhancing the overall image and web presence of the institution.
Expected Outcomes	A complete web-based application with an aesthetic and easy to use and maintain GUI and a powerful backend that allows for fast searches.
Required Resources	The teams can make use of extensive HTML & CSS Frameworks available online (HTML5 Boilerplate, Twitter's Bootstrap) and JavaScript Libraries such as JQuery to accomplish the dynamism required by the application
Skills Required	• HTML5, CSS3, JavaScript, Any Server-Side Scripting Language (PHP, Python, Ruby, ASP .Net) • Database Management System (MySQL, Postgre SQL)
Specialized Tutoring/Help to Be Provided by the Supervisor	None

Project Title	Software Design Metric Tool
Proposed By	Dr. Mohammed Misbhauddin
Brief Description	Metrics are popularly used to quantify aspects of a system to assess its quality. Numerous tools are available for defining and applying metrics to software code. But when it comes to design, only a handful of them fare well with major constraints and limitations. The main objective of this project is to design and develop a design metric tool that allows the user to define new metrics and evaluate models based on existing metrics. This involves studying the few available tools, identifying their shortcomings and proposing ways to overcome them and implementing it as part of a tool. This tool can be a desktop application or a web-based tools (which is more effective mainly due to the popularity of subscription based web-apps market). The choice of the model is left up to the team but since UML is a popular language learned by the students and widely used among practitioners, it is suggested to use UML.
Expected Outcomes	A desktop or web-based application (based on the option selected). Allows a simple design for user uploads and output (result) for the evaluated metrics. Also provides an easy way to define metrics (there are many choices – any one is acceptable here). Optionally, if a desktop application is developed as part of the project, an installer will add exceptional value to the developed tool.
Required Resources	Metrics popularly used by design models as a catalogue will be provided. Numerous XML processing libraries are available that can be used for the project.
Skills Required	• Unified Modeling Language (or any other modeling language used at design-level) • XML (or any other notation used to export graphic models for processing)
Specialized Tutoring/Help to Be Provided by the Supervisor	None

Project Title	Project Versioning System
Proposed By	Dr. Mohammed Misbhauddin
Brief Description	Code versioning is an important activity when it comes to professional software development. But this important activity becomes tedious when it comes to working on smaller projects such as senior projects. There many popular code versioning systems available such as Git, Subversion, Mercurial and so on. But understanding and using them is a challenge specially for smaller projects. But the need for a versioning system, even for smaller projects with a team of developers, is undeniable. This project requires the development of a simple versioning system for code files. Users are forced to check-out items and lock items during reading and writing so that a group of fellow programmers do not accidently overwrite code files on one another. Although this is handled in the present code versioning systems (through branching and merging) it is rarely a necessity when working on smaller projects.
Expected Outcomes	A complete web-based application with an aesthetic and easy to use and maintain GUI and a powerful backend that allows for multi-user collaboration.
Required Resources	The teams can make use of extensive HTML & CSS Frameworks available online (HTML5 Boilerplate, Twitter's Bootstrap) and JavaScript Libraries such as JQuery to accomplish the dynamism required by the application.
Skills Required	• HTML5, CSS3, JavaScript, Any Server-Side Scripting Language (PHP, Python, Ruby, ASP .Net) • Database Management System (MySQL, Postgre SQL)
Specialized Tutoring/Help to Be Provided by the Supervisor	None

Project Title	Hand Posture Detection and Recognition for Human Computer Interaction
Proposed By	Dr Nasser Dardas
Brief Description	Hand gestures provide a natural and intuitive communication modality for human–computer interaction. Efficient human computer interfaces (HCIs) have to be developed to allow computers to visually recognize in real time hand gestures. However, vision-based hand tracking and gesture recognition is a challenging problem due to the complexity of hand gestures, which are rich in diversities due to high degrees of freedom (DOF) involved by the human hand. In order to successfully fulfill their role, the hand gesture HCIs have to meet the requirements in terms of real-time performance, recognition accuracy, and robustness against transformations and cluttered background. To meet these requirements, many gesture recognition systems used the help of colored markers or data gloves to make the task easier. However, using of markers and gloves sacrifices the user's convenience. In this project, the focus will be on bare hand gesture recognition without help of any markers and gloves. Detecting and tracking hand postures such as fist, index, palm and little in a sequence of images help in extracting hand region. Thus, processing time will be reduced and accuracy in recognition will be increased as the features of that region will represent the hand posture only. Hand gesture commands can be used to control or interact with an application or a videogame instead of keyboard or mouse, by sending events to be executed such as double click, close, open, go left, right, up, or down, and so on. Those gesture commands can be generated by three ways: First, by observing the gesture transitions from posture to posture. Second, by observing the direction of movement for each posture: up, down, left, or right. Finally, by observing the hand posture size or scale: when it comes close (zoom in) or far away (zoom out) from camera.
Expected Outcomes	You will design an algorithm that detect and recognize hand postures in sequence of images captured from a webcam or video file.
Available Resources	
Required Resources	Webcam, computer
Skills Required	(1) Has a basic knowledge of C or C++. (2) Has familiarity with computer vision concepts and image processing
Specialized Tutoring/Help to Be Provided by the Supervisor	OpenCV, http://sourceforge.net/projects/opencvlibrary

Project Title	Face Detection and Recognition
Proposed By	Dr Nasser Dardas
Brief Description	The face recognition problem can be divided into two main stages: face identification (or detection) and face verification (or authentication). The detection stage is the first stage; it includes identifying and locating a face in an image. The recognition stage is the second stage; it includes feature extraction, where important information for discrimination is saved, and the matching, where the recognition result is given with the aid of a face database. The face detection problem is challenging as it needs to account for all possible appearance variation caused by change in illumination, facial features, occlusions, etc. In addition, it has to detect faces that appear at different scale, pose, with in-plane rotations. Numerous methods have been proposed for face detection, such as pixel-based [3, 1, 5], parts-based [6, 4, 7], local edge features [8, 9], Haar wavelets [10, 4] and Haar-like features [2,11]. Face recognition methods have been proposed such as the following: • Holistic Methods: The whole face image is used as the raw input to the recognition system. An example is the well-known PCA-based technique introduced by Kirby and Sirovich, followed by Turk and Pentland. • Local Feature-based Methods: Local features are extracted, such as eyes, nose and mouth. Their locations and local statistics (appearance) are the input to the recognition stage. An example of this method is Elastic Bunch Graph Matching (EBGM). (a) Face detection: Write an algorithm which will detect if there is a face in an image, and output an approximate location of face(s). Training data should contain face images and non face images. First you develop a classifier which given a rectangular patch of pixels classifies this patch as a face or non-face, then apply this classifier to all patches in the input image. (b) Face Recognition: Similar to face detection only now there are several classes, each one representing a particular person. Classifier should label an input patch with the label of the person, if the input patch comes from some person in the database, or, if the input patch comes from unknown person or non person, label that patch "reject". Apply the classifier to every patch in the input image.
Expected Outcomes	You will design an algorithm that detect and recognize the faces in sequence of images captured from a webcam or video file.
Available Resources	Webcam, computer
Required Resources	
Skills Required	(1) Has a basic knowledge of C or C++. (2) Has familiarity with computer vision concepts and image processing
Specialized Tutoring/Help to Be Provided by the Supervisor	OpenCV, http://sourceforge.net/projects/opencvlibrary

Project Title	Facial Expression Recognition
Proposed By	Dr Nasser Dardas
Brief Description	New Human–Computer Interaction (HCI) modalities have to be developed to allow humans to interact naturally and intuitively with computer through non-verbal body-language modalities, which include facial expressions, eye movements, hand gestures, body postures and walking styles. Recognizing human facial expression and emotion by computer is an interesting and challenging problem. One of the most important ways for humans to display emotions is through facial expressions. If we want to achieve more effective human-computer interaction, recognizing the emotional state of the human from his or her face could prove to be an invaluable tool. Facial expressions are the facial changes in response to a person's internal emotional states, intentions, or social communications. In this project, facial expression analysis refers to computer systems that attempt to automatically analyze and recognize facial motions and facial feature changes from visual information. The general approach to automatic facial expression analysis consists of three steps: face detection, facial data extraction and representation, and facial expression recognition. In this project a real-time automatic facial expression recognition system will be implemented using video or webcam input. The project focuses on initially detecting the human face in the video stream, on classifying the human emotion from facial features and on visualizing the recognition results. The systems should recognize a small set of prototypic emotional expressions such as disgust, fear, joy, surprise, sadness, anger, etc.
Expected Outcomes	You will design an algorithm that recognize facial expressions in sequence of images captured from a webcam or video file.
Available Resources	
Required Resources	Webcam, computer
Skills Required	(1) Has a basic knowledge of C or C++. (2) Has familiarity with computer vision concepts and image processing
Specialized Tutoring/Help to Be Provided by the Supervisor	OpenCV, http://sourceforge.net/projects/opencvlibrary

Project Title	Analysis of Advanced SSL/TLS Technologies
Proposed By	Dr Nasser Dardas
Brief Description	A security protocol consists of an exchange of messages between two or more agents such as a server and clients, with goals such as establishing a cryptographic key, or authenticating the identities of the clients. These protocols are designed to operate in particularly hostile environments, where an adversary or intruder may be trying to attack the protocol, for example to learn the value of a key. Designing secure protocols has proven to be remarkably difficult; in some cases, attacks have been discovered several years after the protocol was first suggested. SSL (Secure Sockets Layer) /TLS (Transport Layer Security) is the most important security protocol on the Internet, but it is also showing its age: it can add substantial latency to page loads, and the deployment of new technologies is slow due to the difficulty of ensuring widespread adoption. SSL/TLS may fail in three ways: the protocol design may be flawed, the cryptography may be inadequate, or the implementation may be buggy. In this project, you will analyze a variety of new SSL/TLS-related technologies to determine how they impact performance and whether they are suitable for widespread deployment.
Expected Outcomes	You will learn about advanced aspects of the SSL/TLS network security protocol. You will design and implement experiments to test the performance and ability to deploy of new technologies and report on the results.
Available Resources	
Required Resources	Unix Network Stations
Skills Required	This project is suited to students who have proficiency with security, networking technologies and systems administration / Unix skills.
Specialized Tutoring/Help to Be Provided by the Supervisor	OpenSSL. http://www.openssl.org/.

Project Title	Pediatric Health Information System
Proposed By	Dr Qazi Mudassar Ilyas
Brief Description	Health information record of a new-born is important for quality healthcare. Ideally, it should comprise digital record of growth, periodic health examinations and vaccination of a baby. The objective of this project is to design an app for awareness and health record management of new-born up to five years of age. The awareness component is required for parents for specific requirements of the baby regarding baby's growth, mental and physical grooming and drug usage. For parents having physically challenged babies, it may also include guidance in the form of therapies/exercises and special treatments. Health record management component is required to keep track of growth of the baby and any illness. Vaccination is another important component to help the parents and healthcare providers in better management of vaccination.
Expected Outcomes	An Android app for families A web-based system for healthcare providers
Available Resources	Android SDK, Any Java IDE such as eclipse, Netbeans
Required Resources	None
Skills Required	App development, Java, Database design and development
Specialized Tutoring/Help to Be Provided by the Supervisor	None

Project Title	Hadith Categorization
Proposed By	Dr Qazi Mudassar Ilyas
Brief Description	A Hadith can be categorized as Sahih, Hassan or Dha'if based on various criteria such as number of narrators at each level of narration and grading of narrators by well-known scholars of Hadith. The project aims to develop a system that utilizes a Hadith ontology in the form of a graph database. This database will be populated from existing resources of Hadith such as www.qalarasulullah.com and www.muslimscholars.info. Using the logical foundation in the form on ontology, a reasoner will be used to categorize a given narration against criteria laid down by Sheikhen (Imam Bukhari and Imam Muslim).
Expected Outcomes	A desktop or web-based system
Available Resources	Protégé, Jena API, Allegrograph (graph database)
Required Resources	None
Skills Required	Good grasp on knowledge management, Ontologies and GUI design
Specialized Tutoring/Help to Be Provided by the Supervisor	Tutoring will be provided on Fundamentals of Science of Hadith Ontologies

Project Title	Windows 8 App of Jabal Al Qara Using Augmented Reality
Proposed By	Rizaldy Rapsing
Brief Description	Augmented reality is an old concept but only lately has it been a product of people's wide imagination. Some of its applications are in advertising, task support, navigation, industrial, military and emergency services, art, architecture, sightseeing, collaboration, entertainment and education, and performance. It is believed that about 2 or 3 million years ago, the sea-level in the Eastern province was about 150m higher than today. The traces abound in Al Qara caves which made it a popular tourist destination in Al Ahsa. With this, the project intends to create a new experience for visitors of the place by viewing Jabal Al Qara as it was before through AR markers hanged in distinct places, showing waves, marine life, and possibly even early people passing the area.
Expected Outcomes	In relation to Jabal Al Qara, this projected is expected to: 1. design and develop an app that can be accessed by visitors, 2. contain different marine life and experience millions of years ago, and 3. be able to encourage students to make other applications using AR.
Available Resources	Laptop - I7, Qualified hardware-accelerated OpenGL graphics card, at least 8GB RAM, at least 1TB HD Windows 8 OS Visual Studio 2012 Windows Phone SDK 8.0 Autodesk Maya 2013
Required Resources	Partnership with D-Fusion Logitech HD Pro Webcam C920 Sensors Accelerometer Head-mounted Displays Windows 8 Mobile Phone Windows 8 Tablet
Skills Required	3D animation using Autodesk Maya App development using Windows Phone SDK 8.0 Augmented Reality
Specialized Tutoring/Help to Be Provided by the Supervisor	App development using Windows Phone SDK 8.0

Project Title	Windows 8 App of KSA Driving Symbols Using Augmented Reality
Proposed By	Rizaldy Rapsing
Brief Description	Augmented reality is an old concept but only lately has it been a product of people's wide imagination. Some of its applications are in advertising, task support, navigation, industrial, military and emergency services, art, architecture, sightseeing, collaboration, entertainment and education, and performance. Dr. Khalid Al-Seghayer, in his article, "Carnage on Saudi Arabia's Roads", reports that around 7,100 people die and 38,000 others badly injured due to road accidents in the kingdom. There are many factors involved and one of them is a driver's inability to follow road signs. With this, the project intends to create a Windows App that will be able to assist drivers by scanning the roads with symbols and voice it out for the driver to hear.
Expected Outcomes	This projected is expected to: 1. design and develop an app that can be accessed by drivers, 2. scan, interpret and voice out road symbols, and 3. be able to encourage students to make other applications using AR.
Available Resources	Laptop - I7, Qualified hardware-accelerated OpenGL graphics card, at least 8GB RAM, at least 1TB HD Windows 8 OS Visual Studio 2012 Windows Phone SDK 8.0 Autodesk Maya 2013
Required Resources	Partnership with D-Fusion Logitech HD Pro Webcam C920 Sensors Accelerometer Head-mounted Displays Windows 8 Mobile Phone Windows 8 Tablet
Skills Required	3D animation using Autodesk Maya App development using Windows Phone SDK 8.0 Augmented Reality
Specialized Tutoring/Help to Be Provided by the Supervisor	App development using Windows Phone SDK 8.0

Project Title	Windows 8 App of CCSIT Students' Java Exam Reviewer
Proposed By	Rizaldy Rapsing
Brief Description	A number of mobile apps that assist examinees have been receiving recognition all over the world for the purpose that it serves. The topics abound from a kindergarten drill to Bar Exams. KFU CCSIT students deserve the same assistance. With this, the project intends to build an app that enable OOP 1 students to review them anywhere and anytime. It should contains at least 1,000 multiple choice questions complete with answers and rationales with his/her progress monitored.
Expected Outcomes	This projected is expected to: 1. design and develop an app that can be accessed by OOP 1 students, 2. provide questions for students to answer, and 3. monitor student's progress.
Available Resources	Laptop - I7, Qualified hardware-accelerated OpenGL graphics card, at least 8GB RAM, at least 1TB HD Windows 8 OS Visual Studio 2012 Windows Phone SDK 8.0
Required Resources	Windows 8 Mobile Phone Windows 8 Tablet
Skills Required	App development using Windows Phone SDK 8.0 Database design and management
Specialized Tutoring/Help to Be Provided by the Supervisor	App development using Windows Phone SDK 8.0

Project Title	The Holy Quran Application
Proposed By	Dr Shadi Ettantawi
Brief Description	The system should provide the below list of functions: - Displays the Holy Quran for browsing (page by page) - Enabled users to jump directly to a certain chapter(Sura) using its name or a substring of the name, or using its chapter number. - Enables users to jump directly to a certain verse within the current chapter by a substring or by the verse number. - Enables users to search the holy Quran verses using key words or substrings, allowing for multiple words/substrings search within a verse. - Exports search results to an external file, e.g. txt, or html. - Enables users to perform statistical analysis to Quran text, i.e. to count the number of verses, words, characters within the Holy Quran, a certain chapter, or a certain range of text. - The application should deal with the issue of Discretization, that is to accept search words with or without discretization and to display the Quran script with or without discretization. Further advanced functionalities are as follows:- - The application may be enhanced to provide the search results with Ranking. - Another desirable functionality is to provide the ability to morphological search. - Yet, another enhancement is to apply semantic search. The Platform for this project can be either Windows or Mac OS/iOS.
Expected Outcomes	The final product can be either a Desktop application (Windows or Mac), or a smart phone application using one of the platforms iOS, Android, or Windows Phone. The application should be implemented with most of the basic functionalities and with at least two of the advanced functionalities.
Available Resources	The script for the holy Quran. Development environment such as Microsoft Visual Studio 2012 Express, or Apple's XCode.
Required Resources	
Skills Required	- High-Level Programming Language, e.g. C. - Ability to learn a new programming language such as Objective-C, C# or VB. - Ability to work with files, arrays, functions, GUI, and Databases. - HTML is optional. - Ability to work and utilize Data Structures and Algorithms to ensure that application performance is efficient enough. - The problem can approached using Databases, Sequential Files, XML Files, or using Information Retrieval approach. However, the recommended approaches are Files or Databases. - Ability to research and utilize new knowledge.
Specialized Tutoring/Help to Be Provided by the Supervisor	- Provide resources and guidance to learn C#, Objective-C, or VB. - Provide resources and guidance to NLP topics such Ranking, Morphology, Semantic, Ontology, and related concepts. - Provide resources and guidance for needed Data Structures and Algorithms.

Project Title	Automatic Book Website Generator
Proposed By	Dr Shadi Ettantawi
Brief Description	The task of building a library website can be both effort and time consuming if addressed manually. However, a tool can be created to aid the developer in building such a website. The tool to be build accepts as input a book script in a suitable format, e.g. text, xml, or document, and then creates a set of web pages to display the content of the input book.
Expected Outcomes	The required work is as follows: - Design a theme/ template page using HTML and CSS. - Develop a tool to accepts a script in a certain format, and produces a mini website showing the contents of the input book, a web page for each page of the book using the readymade template. - Develop a tool that compiles each book's mini website into the library's website. - Develop website search capabilities. - Develop a tool to provide statistical information about the contents of the website. - Develop a tool to correct common typing errors and linguistic mistakes.
Available Resources	
Required Resources	
Skills Required	- High-Level Programming Language, e.g. C. - Ability to learn a new programming language such as Objective-C, C# or VB. - Ability to work with files, arrays, functions, GUI, and Databases. - HTML and CSS. - JavaScript. - PHP or ASP.Net
Specialized Tutoring/Help to Be Provided by the Supervisor	

Project Title	Automatic Database Schema Generator
Proposed By	Dr Shadi Ettantawi
Brief Description	The task of writing a SQL script to create a database can be both effort and time consuming if addressed manually. However, a tool can be created to aid the developer in building such a database schema. The tool to be build provides a graphical interface to draw an Entity- Relational Model to serve as input, and then creates a file containing a set of SQL statements to convert that diagram into a physical schema.
Expected Outcomes	The required work is as follows: - Develop the tool's graphical interface to allow users to design their ERM using drag and drop with some text input. - Develop a function within the tool to analyze the diagram and discover any errors. - For correct diagrams, the tool converts the logical design into physical design. - The tool generates a set of SQL statements that represents the schema. - The tool can be linked to an actual DBMS such as Access, SQL Server, My SQL, Oracle and creates the schema. - Moreover, another function can be provided that is to read a set of data from a table, and generates a set of SQL statements to duplicate those data, i.e. to import and export data.
Available Resources	
Required Resources	
Skills Required	- High-Level Programming Language, e.g. C. - Ability to learn a new programming language such as C# or VB. - Ability to work with files, arrays, functions, GUI, and Databases.
Specialized Tutoring/Help to Be Provided by the Supervisor	

Project Title	Automatic Merath Calculator
Proposed By	Dr Shadi Ettantawi
Brief Description	Islam has a system to divide Merath. Such a sophisticated system is hard to master by most people, even more, it is a hard, time-consuming, and error prone task when performed by an expert manually. Therefore, a Calculator tool/Expert system to solve a Merath problem can be handy for some people when provided either as a desktop application, a website, or smart phone app.
Expected Outcomes	The required work is as follows: - Analyze the Islamic Merath system. - Design suitable data structures and functions needed to implement the system. - Design and implement an algorithm to solve a Merath situation. - Design a graphical interface to accepts the input for any given problem. - Show the solution for any problem based on the provided input. - Export the problem description/ input along the solution to an external file (such as txt, html)
Available Resources	
Required Resources	
Skills Required	- High-Level Programming Language, e.g. C. - Ability to learn a new programming language such as Objective-C, C# or VB. - Ability to work with files, arrays, functions, GUI, and Databases. - Web Development is optional.
Specialized Tutoring/Help to Be Provided by the Supervisor	

Project Title	Knowledge Contest Game
Proposed By	Dr Shadi Ettantawi
Brief Description	The game functionality is as follows: - Allows for user registration and logging in. - Conduct a Question/Multi Choice answers based contest between a number (say 2-4) of players. - The game can be design for a certain age of users (e.g. Kids, Adults) and with certain field(s) (e.g. Common knowledge, Islamic, Computer or Technology, .. etc) - Questions are asked in a turn based fashion. - Each question has a level (say Easy, Medium, Hard) and points accordingly. - The level of a question is chosen in a way designed by the game developer, i.e. either randomly, based on each user choice, depending on the game scenario, or any other proper method. - The game ends by either reaching a certain number of questions or by reaching a certain level of points. - The game keeps records of (Top Scores) for ranking players.
Expected Outcomes	An intranet or internet based system
Available Resources	
Required Resources	
Skills Required	- High-Level Programming Language, e.g. C. - Ability to learn a new programming language such as Objective-C, C# or VB. - Ability to work with files, arrays, functions, GUI, and Databases. - Web Development is optional.
Specialized Tutoring/Help to Be Provided by the Supervisor	

Project Title	Typing Errors Checker
Proposed By	Dr Shadi Ettantawi
Brief Description	It is common for user to commit typing error while typing an email or when performing any kind of text input, therefore it is useful to build a tool that aids in discovering and correcting such typos.
Expected Outcomes	The work needs to be done is as follows: - Build a Corpus of valid words in a certain language, e.g. English or Arabic. In order to do this, a tool can be developed that accepts as feed a script of correct words in common formats (txt, doc, html, pdf) and extracts words from it, add those words to the corpus, and so on. - The Corpus can be enhanced by applying rules such as "Morphology" rules to form new words. - Another tool should maintain the corpus to keep it sorted and to remove duplicates. - The spelling checker uses this Dictionary to check for each word in a script whether it is correct or not and suggests a number of correct words instead.
Available Resources	
Required Resources	
Skills Required	- High-Level Programming Language, e.g. C. - Ability to learn a new programming language such as Objective-C, C# or VB. - Ability to work with files, arrays, functions, GUI, and Databases. - Knowledge of Data structures and Algorithms (Quick Sort and Binary Search).
Specialized Tutoring/Help to Be Provided by the Supervisor	

Project Title	A Dedicated Document Management System
Proposed By	Dr Tagelsir Gasm
Brief Description	A web based document management system to facilitate the processes used by the scientific council of the university to manage staff promotion activities starting from the delivery of documents from colleges through examination by the members of the council to approving the results of review by the council and taking the final decision.
Expected Outcomes	A prototype information system that significantly contributes to the entire decision making problem
Available Resources	All hardware and software resources unless the students wants to use .Net as a platform for implementation which may also be available around
Required Resources	
Skills Required	Knowledge about system theory, information system theory, SAD (because it is an IS project software engineering paradigms used in CS are not applicable here), knowledge about Java or any other implementation platform.
Specialized Tutoring/Help to Be Provided by the Supervisor	Anyone can supervise

Project Title	A Dedicated Decision Support System
Proposed By	Dr Tagelsir Gasm
Brief Description	A web based DSS to help the scientific council of the university to manage the processes used for examining and approving all the requests submitted by faculty members and researchers to be considered for the research incentives schemes adopted by the council to promote and encourage faculty members and researchers to publish in highly-ranked journals with high impact factors.
Expected Outcomes	A prototype information system that significantly contributes to the entire decision making problem
Available Resources	All hardware and software resources unless the students wants to use .Net as a platform for implementation which may also be available around.
Required Resources	
Skills Required	Knowledge about system theory, information system theory, SAD (because it is an IS project software engineering paradigms used in CS are not applicable here), knowledge about Java or any other implementation platform.
Specialized Tutoring/Help to Be Provided by the Supervisor	Anyone can supervise

Project Title	CCSIT Course Management System
Proposed By	Janice dela Vega
Brief Description	The proposed system will be used by the Quality Assurance (QA) committee for course management. The course will provide facilities for instructors to upload, update and view course specification. The QA committee can use them to monitor the progress of the courses. The related resources such as course report, course material, books and other resources can also be managed in the system. The objective is effective management of QA activities to help improve courses.
Expected Outcomes	A Web based system
Available Resources	
Required Resources	No specific resources are required
Skills Required	Web-based system development, DBMS
Specialized Tutoring/Help to Be Provided by the Supervisor	

Project Title	KFU Housing System
Proposed By	Ramiza Abdulraheem
Brief Description	This system helps allotting flats / villas to the KFU staff members based on the allotment criteria. It also helps to maintain the details like vacant houses, occupant's list or any info related to housing. This will help the admin in allotting houses for the new staff members & to keep up to date record of houses.
Expected Outcomes	Students are expected to develop a new system as mentioned above – using SDLC methodologies learnt in previous years.
Available Resources	Hardware : PC / laptop, n/w connections Software: Any suitable programming language / Framework / Tools: VB, .NET, Java etc. Suitable database – SQL / Oracle
Required Resources	
Skills Required	Good analytical skills& programming skills in the above mentioned technologies.
Specialized Tutoring/Help to Be Provided by the Supervisor	None

Project Title	Problem Tracking system
Proposed By	Ramiza Abdulraheem
Brief Description	Currently the students are requested to report any problems to their respective supervisors (written & signed by the students) which will then be submitted to Admin personnel for further processing. Apart from that students may speak to the coordinator for any issues they face. For any h/w, s/w related issues, we have the system in place (raise request to CCSITSUPP) The proposed system will enable students / faculty to report any problems/issues they face (schedule change, other infrastructure problems, parking problem (if applicable), dispute between students & faculty members etc). It will enable regulating the process of resolving the problems/issues. Students / faculty can know the status of their problem resolution. An automated email will be generated to notify respective actionee.
Expected Outcomes	Students are expected to develop a new system as mentioned above – using SDLC methodologies learnt in previous years.
Available Resources	Hardware : PC / laptop, n/w connections Software: Any suitable programming language / Framework / Tools: VB, .NET, Java etc. Suitable database – SQL / Oracle
Required Resources	
Skills Required	Good analytical skills& programming skills in the above mentioned technologies.
Specialized Tutoring/Help to Be Provided by the Supervisor	None

Project Title	E-Learning Portal
Proposed By	Saira Muzaffar
Brief Description	This project aims at creating a Courses portal for a campus/organization. This allows registered users of the system to join a course available in the site and access the materials published for the course. People can register themselves as students of a course or Faculty for a course. When a person registers himself as a Faculty, an approval mechanism should be triggered which sends an email to the Administrator for approving the person as a Faculty. There will be an admin approval page where admin can approve the faculty members for the course. The course home page should contain the title of the course and a brief description. There will be a discussion board for each course where students can interact, an announcement section, which contains the latest announcements, and a course content section which gives the links for the material available for the course. For faculty members there will be an extra link for uploading the course content in a zip file format. The course content should be html pages, which should be uploaded in the zip file format. There should be a mechanism for the faculty members to create a test for the course specifying the test title and a set of multiple-choice questions and duration of time of the test.
Expected Outcomes	A Web-based system
Available Resources	Windows XP/2000 Oracle MS-SQL / MySQL Tomcat servlet engine JDK 1.4
Required Resources	
Skills Required	
Specialized Tutoring/Help to Be Provided by the Supervisor	

Project Title	Personal Budget Assistant
Proposed By	Dr Sonia Gul
Brief Description	Many people face problems in decently handling their daily budget. The worst part of this is to enter the daily expenses. The Personal Budget Assistant (PBA) will be a mobile app. It is going to self-extract the daily expenses records from the Short Messaging Service (sms). The application will help user to manage the daily budget by giving over-budget alerts (whenever applicable). Moreover, it will also have other options like weekly or bi-weekly expense summary etc. which user may view on his / her request. The pre-requisite for this application is that the user has associated his debit and credit card transactions with sms alerts (which is already supported by many banks e.g., Riyad Bank in KSA)
Expected Outcomes	1. Mobile application (PBA) can be demonstrated on simulator or install on iPhone 2. Effectively aid the daily budget management 3. User guide or help for users 4. Other project artifacts (as per college requirements)
Available Resources	
Required Resources	1. Mac book 2. IOS development environment 3. Paid/free Tutorials (if required from students) http://teamtreehouse.com/
Skills Required	1. Ability to understand and analyse the problem 2. Develop and implement algorithm for mobile applications 3. Good grip on mobile application development using ios
Specialized Tutoring/Help to Be Provided by the Supervisor	Guideline and tutoring throughout the project development.