ITWS Software Development

Final Project

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This is a group assignment up to three members. You could also choose to do it by yourself. Please see the milestones at the end of this documentation

Grading policy: 13% for software project management, documentation, and presentation, and 17% for code implementation.

Objective: This final project is to practice, enhance, and integrate the learning of the software project management and software development, through the development of a three-tier web application.

Project Requirements

The following aspects need be addressed in this project:

1. Software project management
2. Software project documentation
3. The tools for software project management and development
4. Software requirement analysis using use cases
5. Software design
6. UML and design patterns
7. Software implementation
8. Software testing
9. Software deployment

Project Example

- The following link shows a 3-tier E-commerce project in the NetBeans environment using Java technology.

  https://netbeans.org/kb/docs/javaee/ecommerce/intro.html

  https://netbeans.org/downloads/ (Choose Java EE or All to install.)

Project Options

- You could use the project example above as a template to apply your web content, such as a bookstore, a movie store, or a game store, etc.
- You could also do a different project at a similar level of complexity, and choose to use different software frameworks and languages, such as a mobile application, AngularJS framework, MongoDB, NodeJS, Ruby, etc.

Required deliverables

1. The software project plan which should include the following items:
    a. The project overview
    b. The project goals and scope
    c. The stake holders (customers/users)
    d. The project organization: the project owner, the management team, the technical team (resource planning), etc.
    e. The project management: the methodology, the model, and the framework of your choice; the development environment and tools
    f. The deliverables
        i. Final product
        ii. The product artifacts during each phase of the development
    g. The project schedule
        i. The milestones for each delivery
    h. The quality assurance
    i. The risk management
    j. The software configuration management

    Reference:
    - IEEE 1058-1998.pdf: “IEEE Standard for Software Project Management Plans”
    - projectPlanTemplateExample.docx
    - projectPlanExample.pdf
    - More online

2. The software functional specification:
    The general guidance for the specifications are SMART: 1) specific, 2) measureable, 3) achievable, 4) realistic, and 5) testable. The use case diagram should be included in this documentation.

    Reference:
    - IEEE830.pdf: “IEEE Recommended Practice for Software Requirements Speciation”. Its part 5 is more related to our purpose
    - funcSpecTemplate.pdf
    - funcSpecTemplate-2.pdf
    - funcSpecExample-1.pdf
    - funcSpecExample-2.doc
    - More online

3. The software design documentation should include:
    - The system architecture
    - Component diagram
    - Data model diagram
    - Class diagram
    - Sequential diagram
    - Deployment diagram

4. The hardware and software system configuration documentation

5. Quality assurance plan: how to manage the quality of the project (Can be included in the project plan)

6. Class presentation: 1) Give an overview of your project. 2) Demonstrate your code, the architecture, the design UML diagrams, the main components of your software system, and any other technical issues ; 2) Show how you managed the project, such as the quality focus, the process model and methods, the tools, the schedule, the milestones, the task list, the burn down chart, the version control, bug tracking, etc.

7. Submit all your deliverable in either a zipped package to the LMS or using your GitHub account. The later approach requires a submission of your URL to the LMS for our TA to download your files.

Required Milestones

You can follow a waterfall model or an agile model to manage your project process.

1. October 30 (week 8): Submit the draft of your project plan and functional specification to the LMS before 11:59 PM.
2. Nov. 20 (week 11): Submit the design documentation of your project to the LMS before 11:59 PM
3. Dec. 11 (week 14): Final project due for class presentation. Submit all your documentation and code package before 11:59 PM the day after.

Feel free to ask if you have any questions.