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CS335 Software Engineering and Software Process

**Project Design Document**

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| **Programme/Class:** | **CS335** |
| **Team:** | **26** |
| **Project Code:** | **MU-CS335-21-1PL** |
| **Project Description:** | **Albatel has her own IT infrastructure, i.e., the company’s website. The construction and management of the website were outsourced. The company’s website is based on the WordPress platform and hosted by a third-party hosting company. Permissions for configuring the hosting environment to accommodate future customized web applications are very limited.**  **The company has a long-term plan, aiming to provide their HR related services through an integrated software platform. For example, allowing multiple employee applications feed information (e.g., time, attendance, payslips and pension, etc.) into one unified platform for comprehensive analysis and management. At this initial phase of the transition, the company is exploring some webbased online questionnaire and automated HR health check report generation services. This exploratory service should be easily integrated with the company’s existing website without affecting existing functions or incurring major modifications.**  **The objective of this project is to provide an interactive web-service that allows the company’s customers to take online questionaries, and based on their responses received, an analysis report will automatically be generated for the customer to download.**  **The initial high-level requirements are listed below:**  **1. Questions are grouped based on the types (HR related); each group shall be displayed on a separate page.**  **2. After receiving responses, an analysis shall be conducted on a per page basis.**  **3. At the end of the questionaries, the user shall click the “submit” button to submit his/her responses.**  **4. After submitting the responses, the customer will be redirected to a download page to download the report.**  **5. In the report, the analysis results must be represented graphically along with the questions and responses.**  **6. The report must be in PDF format.**  **7. As the IT service administrator doesn’t want to take the risk to modify the current website structure, this means the integration of the service shall be provided as a web-redirect link. This also implies that the newly created service can be developed and deployed independently.**  **8. The expected number of customers consuming the service is relatively small. However, as the company’s business expands, the popularity of the service may increase significantly, thus the scalability of the service is important to the longterm plan of the business.**  **9. The service will be provided as one of the premium services of the company, thus the performance and availability are important factors for the company.**  **10. Security is vitally important for business continuity. However, as this project is an extension function to the existing services, thus it should be protected by the existing authentication and authorization services already in place. Considering using a shared session ID as an authentication method for the new service** |

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| **Part 1 (Individual Work)** | **Draw a context diagram for your project.**  At an early stage of project development, it is important for software engineers to establish a ‘*big picture*’ of the software system to be developed. A context model provides an overview of the system. It captures the decision on the system boundaries, i.e., deciding what functionality should be included in the system and what processing and operations should be carried out by other systems in its operational environment.  Depending the types of the project and the project requirements, a context model may or may not apply to your project. Regardless whether context model applies to your project or not, explain why it is the case. |
| **Explanation:** | The context model I have provided shows the things needed for the said software. The first thing that is needed is for the user to sign in, sign in is needed for security purposes and after the signing in the user will need to be authenticated and will have authorization to use the questionnaire. The second functionality that is needed is the questionnaire itself, user will answer the questions in the questionnaire and in exchange the questionnaire database will store and retrieve its information. The next functionality used is Submit, after submitting the user will be redirected to the results page and shows a graphical representation of their results. Another functionality that can be used is the PDF functionality, user clicks on a button to allow their results to be in a PDF in exchange the user retrieves that data and receives the PDF. The final functionality is the Web Link Questionnaire which allows the user to click on the link to the questionnaire itself which in turn will allow them to be redirected to the Questionnaire. Context Model applies in this project as it helps us create a structure between data and the functionality in this project. It gives us a simplified version of the functionality required in the system. |
| **Diagram:** | **Diagram  Description automatically generated** |

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| **Part 2 (Individual Work)** | **From the User Stories that you have created for the project, select 4 important User Stories and draw a Use Case diagram for each of the selected User Story.**  Use Case diagrams are mostly used to capture the interactions between a system and external actors (human users or other systems). Use Case diagrams are often drawn for facilitating brainstorming and initiating discussions on project requirements. They are also provided as a secondary method for documenting requirements. |
| **User Story 1 (Description):** | As a user, I require to login information about my company before attempting the questionaire. I will need to fill in the following details as shown in Acceptance Criteria. If I fail to fill in parts of the form, there will a red line that tells them I have missed that certain part of the form. Else I user can be able to click the a button and begin the questionaire |
| **Corresponding Use Case Diagram:** |  |
| **User Story 2 (Description):** | As the user, I require for each question, I require 3 options to choose from depending on the level of confidence I have with my ability to do it. It ranges from red (least confident), amber (mildly confident) and green (very confident). After each section of questions I require the ability for me to skip or to go to my chosen section, until I click on submit. |
| **Corresponding Use Case Diagram:** |  |
| **User Story 3 (Description):** | As a User, I want to be able to see my results of my questionaire through a PDF. This is to allow me to understand what kind of problems are occurring in my company and how can I solve in a positive and constructive way. After I click submit I should be redirected to the results section and will be able to click on my results through a PDF format. |
| **Corresponding Use Case Diagram:** |  |
| **User Story 4 (Description):** | As a user, sometimes I do not have time to even check the results, this makes me very annoyed at myself, but I would like an option in the Results page to allow me to share my work to my workers through a link option. |
| **Corresponding Use Case Diagram:** |  |

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| **Part 3 (Individual Work)** | **Select two important interactions between internal components of the system under development, the draw one sequence diagram for each interaction. In the sequence diagrams, make sure you clearly indicate the *participates* and the message flows.**  Sequence diagrams are often used to model interactions between system components (sometimes, external actors may also be included). |
| **Sequence Diagram 1:** |  |
| **Sequence Diagram 2:** |  |

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| **Part 4 (Individual Work)** | **Draw at least two class diagrams for your project. You may draw as many class diagrams as you need.**  Class diagrams are used to illustrate static structures of software system. In a class diagram, we aim to identify relevant classes in a system and the relationships between these classes. Structural models, such as class diagrams, are also important for software engineers to understand the organization of the classes in the system and to serve as a blueprint for implementation. |
| **Class Diagram 1:** |  |
| **Class Diagram 2:** |  |
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