INFS3420 Project Description and Requirements

Department of Information Systems, Sultan Qaboos University

Total Weight: 30% of the final grade

Submission Deadline: 4th May, 2023

OBJECTIVES: The objectives of this project are to enable the students:

- Understand and Analyze business requirements
- Design the business application architecture
- Select libraries to support business requirements
- Apply programming principles and essentials to satisfy business needs
- Integrate hardware and software components to create a cohesive application

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SUBMISSION: It is recommended that you complete this project in a group to experience a sense of collaboration and responsibility. Being in a group and any conflicts/issues resolve is the student responsibility. However, it is not mandatory to be done in a group. You may do it individually, as some students might prefer. The scope of work will not be changed for individuals.

EXPECTED OUTCOMES:

Documentation [10%]

The entire documentation should be compiled using **Jupyter Notebook**, and should be shared, an IPYNB file, by a group member/leader with the Instructor via email.

Requirements:

- The documentation should include the cover page info
- A table of content – as a link to each major and first-level subsections
- Proper headings and subheadings for each section and subsection
- The documentation should include appropriate figures where applicable, particularly in the Design and Architecture Sections
- Add references where necessary
- The sections should corresponds to the following content:

1. **User Requirements –** *What the users need/can do to use the application?*
   Specify User Requirements/Statements related to:
   - **a.** User Registration/Signup
   - **b.** Participate in Student Exit Survey
     i. Student Name, email, feedback about the program, CGPA, and registration date (Cohort should be extracted programmatically, and NOT directly through the form)
   - **c.** Extract Individual User survey
   - **d.** Retrieve Students/surveys based on a specified Cohort

2. **Functional Requirements –** *What the app should do?*
   Specify Functional Requirements/Statements related to:
   - **a.** Register AND Authenticate (Login/Logout) users – Using Streamlit Authenticator or self-developed
   - **b.** Validates Student Exit Survey input
   - **c.** Store survey information in DB
   - **d.** Derive response for individual student feedback, registered in the survey, using OpenAI/ChatGPT API, as soon as the survey is submittedregistered
   - **e.** Sends the feedback response via email to the concerning student
   - **f.** Extract and Display information based on individual user search
   - **g.** Extract and Display, in a tabular/DataFrame manner, ALL the Survey information as per the user selected cohort (or ALL cohorts)
   - **h.** Perform Sentiment Analysis and Display, as a chart (bar or pie), the sentiment of the feedback. This sentiment chart should change as per the Cohort choice of the user. It will be better to code this requirement along with the one specified in **Point g** above.
   - **i.** Display basic Statistical information in a suitable representation (text, error, info, write, warning widgets of Streamlit will not be accepted). It will be more easy if you code it along with **Point g** above
     i. Basic Stats are:
     ii. Minimum, maximum, average GPA in the Overall Collected Survey or as per the selected Cohort selected by the user
     iii. For each of Max, Min Avg GPA you should display the corresponding student info (stored in the DB as a part of the Survey). You can use Streamlit Expanders(st.expander()) to categorize the statistics and corresponding information

3. **Design Specification**
   - **a.** Specify the application Interface Design: Describe the major GUI components required for the application
   - **b.** Architectural Design
     i. System Architecture and description: Using a diagram, explain what are the different components (Hardware, Software, and storage), what data do they take as an input, what do they do with the data, and what do they produce as an output for other components.
     ii. Software requirements: List and describe what libraries are necessary/utilized for the application and what is/are their objective(s) in the application

Application Development and Demonstration [20%]

The application should be demonstrated as a group. The application should implement all the mentioned User and Functional Requirements.

- There must be at least **3 user-defined classes**, that implements: properties, __init__, and at least one class method, defined and used in the application
- 5/20 marks will be reserved for the Q&A session for each group member. Due to tight schedule and time constraints, there will be no makeup sessions if a group member misses the Q&A session. Therefore will lose the 5% marks
- 15/20 marks will be awarded to the overall completion of the User and Functional Requirements stated in the Documentation section.
- Documentation should be shared (by **4th May 2023**) prior to the demo date [**Sunday 7th May, 2023, usual class timing. To be scheduled in my office. Schedule will be announced after**]
- All group members should be present on the demo date and should bring their own laptop or setup the lab machine for demo.
- Any potential problems in the demos should be dealt with before the demo. No excuse will be entertained