SWEN 6301: Assignment #3

Due on November 9, 2019 at 2:00 PM

30 Points (5% Overall)

Important Note

Any copy-pasted or copy-glued content will not be tolerated and the WHOLE assignment will not be graded! Please, read about Sentence Re-Phrasing Tips on the following website:
`https://www.rephraser.net/rephrase-the-sentence-correctly-with-these-useful-tips/`.

Problem 1

(8 points)

Serverless architecture is a software architectural pattern where the software (normally web application) relies on third-party services to run its intended features and services. Read more about Serverless architecture online and answer the following questions:

1. *(2 points)* Briefly describe in your own terminology the Serverless architecture?
2. *(2 points)* Briefly describe how Serverless architecture affects the application's time-to-market. Vague explanations will not be accepted. You can use examples to communicate your ideas.
3. *(4 points)* Consider the scenario where a client contracted a technical company to build a school management application. The company and the client have agreed on the detailed requirements, estimation, and scheduling. Later on, the company's technical manager has decided to use Serverless architecture without client's consent. The technical manager confirms to her team that they will still be able to deliver the application within the agreed upon deadlines, estimations, and schedules. However, adopting the Serverless architecture could affect some explicit and implicit non-functional requirements. Think about **two** non-functional requirements that can be affected by the technical manager's decision to use Serverless architecture. Vague explanations will not be accepted. You can use examples to communicate your ideas.

Problem 2

(10 points)

WhatsApp is a popular chatting application that has more than 1.5 billion active users in over 180 countries. Your task is to choose **two** WhatsApp features or services and describe a possible architecture or system design to implement them. To communicate your answer effectively draw a rough system design diagram to show your architecture along with few sentences describing the **overall design** and the **expected flow**. There are tons of videos and blogs online that discuss the full-fledged WhatsApp system design. Here we are concerned with only two preferred features of your choice. In your design, you do not have to address scalability, security, consistency, and availability concerns. We are looking for simple design that would work for similar chatting application with small user base.

Problem 3

(12 points)

In class, we talked about how design patterns could reduce the code complexity and help us in creating high-quality classes. Your task is to comprehend the code at the git repository: `https://github.com/atamrawi/SWEN6301-Assignment3`, then create a high-quality version of this code through the following:

1. *(4 points)* Use enumeration classes (`Enum`) to represent the possible values for blood types and sex types.
2. *(8 points)* Leverage the **Builder**[1] design pattern to improve the code quality. The goal is to have a systematic way to create a Patient instance and communicate it through the different classes.

For your answer to be graded, you need to submit your answer through a **forked** github repository:

1. Fork the repository at: `https://github.com/atamrawi/SWEN6301-Assignment3` to your own github workspace.
2. Implement your changes.
3. Push your changes to your github repository.
4. Put a link to your github repository in the answer document.

[1] `https://en.wikipedia.org/wiki/Builder_pattern`