BISM7255 Business Information Systems Analysis and Design

Individual ASSIGNMENT

ASSESSMENT WEIGHTING: ***45%***

DUE DATE: ***26 April 2019 at 1:00pm***

Overview

This assignment requires you to create a number of UML models that would assist a systems analyst to automate business processes and work tasks of an organization.

The assignment is to be performed **individually**.

It is understandable that students talk with each other regularly and discuss problems and potential solutions. However, it is expected that the submitted assignment is a unique document – all parts of the assignment are to be completed solely by the individual student. The best practice to avoid misconduct is not to look at another student's file(s) and not to show your solution to other students. In case where an assignment is perceived to not be a unique work, a loss of marks and other implications can result. For further information about academic integrity, plagiarism and consequences, please visit http://ppl.app.uq.edu.au/content/3.60.04- student-integrity-and-misconduct\

Case Opening

Kroko-Fit was opened by Mr. and Mrs. Meier in 2016 as a high-end sport and wellness club in the suburbs of Brisbane.

Over time, Kroko-Fit has experienced various problems with their business operations. To prevent these problems reoccurring in the future, to be more professional to customers, as well as to streamline the center's operations, the owners have decided to introduce a business information system that will automate their business operations. None of Kroko-Fits staff is capable of undertaking such a project and, therefore, the owners decided to employ an external consultant (you) for the project.

Case Scenario

Kroko-Fit operates 7 days a week from 6am to 10pm. However, due to increasing competition, particularly in gym service, Kroko-Fit is considering opening its gym facilities for 24 hours a day, 7 days a week.

Kroko-Fit has a swimming pool, a gym, 4 tennis courts, 8 squash courts, and a bowling hall. Attached to the center is Kroko-Shop, a shop that stocks various sport clothes, shoes, and sport equipment, such as squash and tennis rackets. Kroko-Fit also has a restaurant that serves drinks and healthy food. In addition to all these facilities, Kroko-Fit provides racquet stringing service, shoe hire for the bowling lanes, and personal coaching.

The owners are not involved in the day to day operations and hired two people that can be considered as the management of Kroko-Fit. The center employs 6 fulltime receptionists and 2 technicians who maintain the center's facilities. In addition, Kroko-Fit has contracts with 4 casual tennis coaches and 2 squash coaches who can be booked through the main

reception. Also, Kroko-Fit employs 5 fulltime hospitality staff, who prepare and serve food and drinks in the restaurant and 3 casual staff for the Kroko-Shop.

The use of the swimming pool and the gym are on membership basis. Members pay either a one-off annual fee in January every year or pay a slightly higher fee every three or six months. The rent of tennis and squash courts as well as for bowling lane is based on an hourly rate. These rents and any other services, such as stringing, private lessons, shoe hire and any purchase from the shop and restaurant are either paid in cash or a bill is sent at the end of each month to the clients.

Currently, the center runs an excel spreadsheet for any booking systems with one hour booking slots from 6am to 9pm. Once a booking is made for a court or a bowling lane, the customer's details are entered. Separate spreadsheets are kept for the tennis and the squash courts and the bowling center. Changes to the bookings are frequently made and anybody of Kroko-Fit's staff who answers the phone or talks with a customer undertakes the changes.

A paper file is maintained for each member recording their personal details and also monthly use of the courts, the bowling center, stringing services, private lessons, restaurant items, and purchases of items from the Kroko-Shop. Company policy dictates that private lessons with a coach are on a one-on-one basis. Furthermore, members are allowed to bring up to two guests per year to the center.

Kroko-Fits insurance requires that all people present in the club are known to the management, hence, there is a paper-and-pencil system of signing in guests. Their name is recorded against that of the member.

The restaurant orders food ingredients and drinks from a local whole seller. While the 5 staff members in the restaurant are full time, during summer holidays and other busy times, casual staff is hired as well.

In recent months, especially during peak seasons, such as long weekends and holidays, Kroko-Fit experienced a number of problems about which customers complained to the management:

- Tennis courts were booked by customers who did not show up
- Customers arrived with a booking number but there was no court available
- Shoes rented for the bowling were supposed to be available in the shoe racks but, sometimes, they were not
- Double booking of tennis and squash coaches
- Errors in monthly membership fee bills, especially when customers paused for some time
- Food and drinks were not billed correctly
- Customers had to wait long until they were served by the reception staff or waitress in the restaurant

In addition to addressing these problems, the management of Kroko-Fit wishes that the new system can be used to introduce some innovations in servicing the customers but should not involve any significant additional investment. As an expert in IS, you believe that Kroko-Fit would gain the most benefit by automating parts of the current manual system initially mentioned by the management. Note: Kroko-Fit is currently running the MYOB accounting system to manage their normal everyday accounting functions.

Note: During designing the system, you may make some assumptions/add information to enable you to complete the design. Please put the additional information/assumption in the final report.

UML Portfolio

All UML models **MUST** be created with Enterprise Architect (EA) and each diagram must be exported as an image and pasted into a Word document that **MUST** be submitted as well.

The word document needs to include an overview page that must contain a table of contents with meaningful headings. For example, "Activity Diagram 1 – Hiring a tennis court". In addition, each diagram may have assumptions underneath if needed. It is recommendable approximately 200 words but can be less or more. Also, it is desirable the use of bullet points. For example, "In order to improve the payment methods credit card transactions were added ". Furthermore, the word document must have the pages numbered and the diagrams must have a readable font size.

1. Two Use Case Diagrams

Each use case diagram should have **3** different actors, and **10** top level use cases and includes multiple include/extend relationships.

2. Two Activity Diagrams

Activity diagrams should show a step-by-step logic of two different use cases. Each aactivity diagram should have **10** steps (activities). You must have multiple split/fork, join bars and various decision activities.

3. Two System Sequence Diagrams

Each system sequence diagram should include **1** domain object that interact with the actor in a complex sequence of interactions (10 input messages) where the order of these interactions is very important for achieving the goal. You should also include in your system sequence diagrams message notations, multiple examples of loop frames, opt frames and alt frames.

4. Two Domain Model Class Diagrams

Each class diagram shall include **10** domain classes, following UML notation for multiplicity, including multiple instances of generalization/specialization, multiple cases of whole-part relationships (i.e., aggregation, composition), and at least one association class. Please note that each model must represent the system from a different aspect point.

5. Two State Machine Diagrams

Each state machine diagram shall have **5** different states, with various transitions/paths, various transition statements, multiple composite states.

Submission

The assignment must be submitted electronically through Blackboard. You need to submit two things:

1) Analysis and design assessment portfolio. This is a word file (no PDF).
2) Enterprise Architect file that corresponds with your word file diagrams.

Export each diagram as an image and paste it in a **WORD DOCUMENT** and submit the **EA FILE/S** used to produce the portfolio. Files submitted as email attachments to teaching staff will not be accepted. Late submission will result in the reduction of marks.

Submission Date

Submission date: ***26 April 2019 at 1:00pm***

For each day (including Saturday and Sunday) after the 26 April 2019, a penalty of 5% of the marks will be deducted until the assignment is submitted.

Marking Rubric

The project will be graded on its scope, usability, maintainability, consistency, credibility, and suitability in the target organization and style of the project report. You will also be graded as to how well you have followed the analysis and design procedures demonstrated during the course and the quality of the final presentation. For details, please refer to the marking rubric attached to the assignment.

You will be marked considering the two following main sections:

- Correct use of diagrams notation: Each diagram **MUST** comply with the notation learned on tutorials. Although other notation conventions exist, it is considered correct the one used in tutorials and written in the tutorial material.
- Correct logic and consistency with the business case: Apply a consistent logic to solve the business case is essential. Logic means that each assumption made and what each diagram describes **MUST** be considered in all the diagrams as the purpose of the assignment is to solve a business problem. For example, if the solution includes the implementation of an automated booking system to solve the problem of the tennis court bookings. The diagrams **CANNOT** include other systems that can contradict this solution.

Consultation

To ensure that equal and sufficient amount of time is allocated to every student, the **average** consultation time (during busy consultation periods) will be limited to 10 minutes per student. However, in circumstances when there are no other students waiting, a longer consultation time is possible.

Similarly, to ensure fair treatment to all students, tutors will not be allowed to look at your assignment files/works. Questions regarding your assignment will only be answered if they are general in nature, for example on the use of Enterprise Architect or general question on the different model notations.

Extension Application Procedure

A request for extension of the assignment due date will need to be done via the submission of an online application at this link: https://my.uq.edu.au/node/218/0#0
Neither course coordinators nor lecturers can grant assessment extensions to students.