**ASIA PACIFIC UNIVERSITY**

**CT046-3-2 SDM – SYSTEM DEVELOPMENT METHODS - APU DEGREE – LEVEL 2**

**COURSEWORK**

Hand-out: Submission:

PLEASE CONSIDER THE ENVIRONMENT AND DO NOT PRINT THIS DOCUMENT UNNECESSARILY.   
QUICK TIPS; CONVERT TO SLIDE FOR DISCUSSION or PRESENTATION, DISTRIBUTE SOFT-COPY ONLY, PRINT DRAFT, PRINT CONTENTS ONLY, PRINT DOUBLE-SIDE, PRINT 2IN1, USE RE-CYCLED PAPERS ONLY. THANK YOU.

**LEARNING OUTCOMES:**

* Explain the purpose, structure and scope of modern Information System Development Methodologies and select and justify appropriate methods of analysis, design and implementation for a particular component or application, be it traditional, multimedia or web based.
* Analyze and design different views of a system using tools and techniques.
* Apply UML analysis, design and implementation techniques to develop a simple prototype, with a suitable interface, from conception through to implementation.
* Demonstrate a knowledge of the fundamental issues of prototyping by applying standard design principles.

**CASE STUDY:**

**CRC: ONLINE CAR RENTAL SYSTEM**

You are required to plan, analyze, design, and develop a simple prototype for a car rental company (CRC). CRC has various models of cars to be rented out. Each model is specified by its manufacturer, model name, and has its daily charge. Each car has a registration number and odometer reading. Customers who wish to rent a car will make a booking specifying the model that they want and the dates that the car is required.

On the specified day, the customer will come and collect the car. Based on the model that is booked, an available car will be allocated to the customer. The odometer reading of the car is noted and a rental agreement will be drawn up for the car. The customer’s name, address, mobile phone number, and driving license number will be recorded. Customers may also be Corporate Customers in which case their job title and the company name must be known.

Besides, CRC would like to offer rewards or loyalty cards to their customers to encourage repeat rentals and higher-rent values.

Some of the features and processing requirements in the new system including:

* CRC employees shall be able to record and manage information of the car, customer, car booking, and rental agreement.
* Customers shall be able to create an account of themselves, and search cars based on some criteria such as model, price, etc. When they are interested to rent a car, they will book the car through the system.
* The new system shall be able to send personalized recommendations or special offers to customers based on their car/content browsing history.
* Etc.

The system should also produce reports at some specific points in time – for example:

* A weekly, monthly, and yearly sales report.
* The total number of employees and customers in different categories.
* Customer segmentations are based on demographic criteria such as gender, age, job title, car model preferences, etc.
* The most influencing customer segment growing in the company.
* Etc.

State any logical assumption used in the case study.

**TASK:**

***You are a software development consultant, hired to advise CRC on efficient development approaches for their project.*** *You should work with a group of* ***3 or 4*** *members. Part-A (70%) is a ‘Group Component’, to be completed collaboratively. Part-B (30%) is an ‘Individual Component’, to be completed by each member of the group respectively.*

**PART-A – GROUP COMPONENT (70%)**

# Project Planning

* 1. **Introduction** - This should include a brief introduction of the company, its customers, and its current **business process**.
  2. **Scope, Aim, and Objectives –** Define **the Scopes, Aims** and **Objectives** for the project.

1. **Agile Principles and IS Methodologies**
   1. **Agile Principles** - As the initial stage, your team has decided that Agile Methodscould be beneficial to be applied for the project. How would you make your project more Agile? Outline a few Agile Principles that you would implement to make your projects more agile. Explain the strategies that you would take to implement them.
   2. **Methodologies – Compare and contrast** the types of methodologies that you would recommend for the project. Compare the features of these methodologies so distinctive advantages are seen for their applications into the project or product. You may present a summary table of your comparison. (Your answer should include at least one method from Structured and Object-Oriented based Methodology).
   3. Proceed to Section 6.1 (individual Component)
2. **System Analysis -** Assume that you have collected ample information for your project during the ‘Requirement Elicitation’ stage. Describe the methods that you would use to compile, analyze and present data gathered from your investigations. Justify your sections.
3. **Design** - Design often comprises the modeling of the system. Present a list of the most suitable modeling techniques that you would adopt for the project/product, relevant to your recommended Methodologies. Justify your selections.
4. **Implementation and Deployment**
   1. **Construction** – list and explain the functions and purpose of the major software (and tools) that you would consider in the construction of the new system.
   2. **Testing** - Suggest a few Testing Methods suitable for your system.
   3. **System Deployment** – Briefly compare the types of ‘system change overmethod(s)’ available.Form the comparison, suggest the type of ‘system change over method’ that you would implement for the product. Briefly explain how and why these methods are carried out.

**PART-B – INDIVIDUAL COMPONENT (30%)**

*This part involves individual (member) contribution to this assignment. The whole discussion should not exceed 1000 words.*

# Selection of Methodology - From your above comparison, choose a methodology and explain in detail how your project will be developed according to the methodology stages. Include any frameworks and/or diagrams as aid. *(Group members are encouraged to select different methodology from each other).*

1. **Project Scheduling** - Create a simple project schedule (such as a Gantt Chart, PERT Chart, etc.) according to the methodology that you have suggested in Part-6. Clearly show the tasks (and sub-tasks), predecessor (parallel, sequential, iterative, if any) recommended for the project.

# Project Presentation

# Present your solution and suggestion including an explanation of each section of your topics.

# A detailed presentation of your individual component.

**ASSIGNMENT DELIVERABLES AND CONDITIONS:**

* Final Documentation has to be word processed, printed in A4 size paper (double sided preferred) and professionally bound. The maximum of 5000 words is recommended.
* Clearly separate and indicate the Group component, followed by Individual component in your documentation. Individual components need to be included with Student’s Name and TP Number.
* Include a ‘Workload Matrix’ (attached), indicating the contribution of each individual for each required component (shown in percentage) and should be signed off by each team member, attached to the APPENDIX part of the final document.
* Citation of facts is mandatory. Obtain your facts from credible sources into references / bibliography. Avoid ‘dumping of data’. Instead the facts that you discuss should be made relevant to your case/project.
* It is acceptable for discrete activities of this assignment to be undertaken by individual group members. However, it is essential that all group members understand the presentation in its entirety. At the end of the demonstration your group will be asked a series of questions to explore your understanding and analysis of the given problem.
* The presentation will be conducted according to the date & time allocated to each group. Late submissions will not be assessed unless extenuating circumstances are upheld.

**Marking Criteria**

*The coursework will be marked based on the following area:*

|  |  |
| --- | --- |
| **Chapters** | **Marks Allocated** |
|
| Project Planning  * 1. Introduction   2. Scope and Aims & Objectives | 5  5 |
|
| 1. Agile Principles and IS Methodologies    1. Agile Principles    2. IS Methodologies | 10  10 |
|
| 1. System Analysis | 10 |
|
| 1. System Design | 10 |
|
| 1. Implementation and Deployment    1. Construction    2. Testing    3. System Deployment | 5  5  5 |
| Overall Documentation | 5 |
| (Individual Component)   1. Selection of Methodology 2. Project Scheduling | 15  5 |
| 1. Project Presentation  (Group and Individual Component) | 10 |

**WEEK 6 - include pieces framework for problem analysis in the context of the case study**

**WEEK 7 – 12**

**WEEK 13**

# Performance Criteria

## Distinction (75 % and above)

This grade will be assigned to work where the documentation is complete and describes in detail, with little or no errors, the following components: introduction, feasibility study, usage of SDLC, selection and application of investigation techniques and analysis / logical design in accordance with excellent documentation standards. To obtain this grade, the candidate’s individual assignment should show all techniques of process applied with little or no errors. All deliverables of the individual component should be coherent with detailed description to explain the diagrams. Overall documentation standards for both the group project as well as the individual assignment should be of excellent quality. In order to obtain a grade at this level, individuals should be able to address all issues with regards to not only their own component of the module but also be those of the other group members. Individual’s contribution to the project, at this level should be more than 75% and overall peer evaluation should indicate excellent standards.

## Credit (56% – 69%)

This grade will be assigned to work where the documentation is complete and describes briefly, with some errors, the following components: introduction, feasibility study, selection and application of investigation techniques and analysis / logical design in accordance with good documentation standards. To obtain this grade, the candidate’s individual assignment should show all techniques of methodology applied but some errors. All deliverables of the individual component should be coherent with detailed description to explain the diagrams. Overall documentation standards for both the group project as well as the individual assignment should be of excellent quality. In order to obtain a grade at this level, individuals should be able to address most issues with regards to not only their own component of the module but also be those of the other group members. Individual’s contribution to the project, at this level should be more than 65% and overall peer evaluation should indicate excellent standards.

## Pass (40% - 55%)

This grade will be assigned to work where, most of the basic requirements of the documentation listed above, such as introduction, feasibility reports, logical process models, data dictionary are of adequate standard which is evident in the hardcopy of the documentation. The physical design of the system in terms of the interactive screen design and report maps adequately against the logical design presented in the documentation. The documentation should be of adequate standard in terms of language, layout and flow. Some accurate, relevant and up-to-date referencing was visible. Group presentation of the team should have adequate visual aids with relevant information presented and adequate coordination among group members. Individuals should display an adequate level of professionalism and project knowledge. Peer-to-peer evaluation of individual’s contribution should be adequate.

## Fail (Below 40%)

This grade will be assigned to work where, most of the basic requirements of the documentation listed above, such as introduction, feasibility reports, logical process models, data dictionary are of poor standard which is evident in the hardcopy of the documentation. The physical design of the system in terms of the interactive screen design and report shows little or no mapping / linking with the logical design presented in the documentation. The documentation is of poor standard in terms of language, layout and flow. Minimal or no referencing was done. Group presentation of the team has poor visual aids with irrelevant information presented and poor coordination among group members. Individuals display on the average a poor level of professionalism and project knowledge. Peer-to-peer evaluation of individual’s contribution is poor.

End.

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