**Coursework for Model-Driven Software Development**

**Group Project Description**

**0. Instruction:**

1. It is a group work and 4-8 students are suggested to form a group.
2. There are 8 use cases in the CoCoME paper. Every student is required to analyse and design at least one use case.

【Special Notice on UC-1~UC-8】

1. In addition to the given cash payment and card payment, you are required to think about including the Wechat payment and Alipay payment.
2. Moreover, think about the payment of Wechat and Alipay with red bags (Hongbao) as you have experienced in daily life.
3. Anywhere the card payment is allowed, the payment of Wechat or Alipay is also allowed, and certainly with red bags (Hongbao) allowed.

【Add a new Use Case of Online Shoping: UC-9】

1. Think about how you buy something in Taobao, Tmall, JD, etc. you could know well on how to achieve a series of activities
2. Each group is required to submit one project report, so your group members should work jointly and contribute to the group work to perfect the only one report.
3. Deadline: 2021-4-20

Your project development and documentation are required to cover the following activities and artefacts.

**I. The Initial Requirements Understanding**

In this stage

1. Identify the *essential use cases*, which cover and support the understanding of the required functions in the problem description.
2. Write an *expanded version* for each of these use cases.
3. Create a use case diagram for the use cases that you identified in the previous question to show the relationships between the actors and the use cases, and the relationships between the use cases.
4. Using the guidelines, strategies, and notation discussed in the course notes, work through the problem statement and the use cases that you have identified in item 3 to identify classes (concepts), associations, and attributes in the application domain. You should give enough discussion to support your identification. Draw a conceptual class diagram, which includes the classes, associations, and attributes that you have identified. Again, you only have to consider the functions and the use cases that you considered for item 3. You should give enough discussion to support your identification. Draw a conceptual model, which includes, the classes, associations, and attributes that you have identified. You may find that you need to refine or modify your use cases.

**II**. **Functionality Analysis of System Operations**

1. Use the techniques discussed in Chapter 6 of the course notes to identify the system operations from the typical course of events of the use cases that you have produced. Create system sequence diagrams for the typical course of events of the use cases that you think most significant for the development of the system. You may find that you need to refine or modify your use cases and conceptual model that you have produced.
2. Based on your use-case model and conceptual model that you have produced write the contracts for the system operations that you have identified. You may find that you need to refine or modify your use-case model and conceptual model while you are working on the contracts.

**（5月31日）**

**III. Use Case Design**

Based on the use-case model and the conceptual model that you created and the contracts of the system operations that you defined for the system operations that you have identified, work out a design for the system. The design document should include:

1. The collaboration diagrams or object sequence diagrams (not both) which show the assignment of responsibilities to classes of objects.
2. Enough discussion about the use of the patterns in your assignment of responsibilities to classes of objects.
3. The design class diagrams, which shows the methods/operations of classes.

【Notice】 if you can further cluster the above classes into Microservices you will ***get additional up to 20 scores*** on this project. You can gain the bonus by providing:

1. the Microservice collaboration diagrams or Microservice sequence diagrams (not both)) **[5 scores]**
2. the design Microservice diagrams, which shows the classes of each Microservice as well as the provided interfaces of each Microservice. **[5 scores]**
3. A running Microservice system **[10 scores]**

**IV. Documentation**

1. Produce the final project report for a coherent presentation of the development activities and the artefacts produced, i.e. UML model. The design process activities and the models should be evaluated, and the consistency of the models should be discussed. Enough glossary definitions should be given for the terms used in the design to help the reader.

The submission of the coursework is the final overall project report. Note the UML models should be created by using the appropriate tool and not by other means.

**V. Final Scores**

* **The homework raised in some classes is required to be completed. Those who do not submit the homework should not pass the unit.**
* **The coursework report is the final artefact and unique evaluation document for the final scores. The gained scores in the report accounts for 30% of MDSD.**