BINUS University

Academic Career: *Undergraduate / ~~Master~~ / ~~Doctoral~~ *)*			Class Program: *~~International~~/Regular/~~Smart Program~~/~~Global Class~~*)*		
☑ **Mid Exam** ☐ **Short Term Exam**	☐ **Final Exam** ☐ **Others Exam : _____**		**Term : Odd/~~Even~~/~~Short~~ *)**		
☑ **Kemanggisan** ☐ **Senayan**	☑ **Alam Sutera** ☐ **Bandung**	☐ **Bekasi** ☐ **Malang**	**Academic Year :** **2021 / 2022**		
Faculty / Dept. : School of Computer Science			Deadline	Day / Date : Thursday / Nov 25th, 2021	
				Time : 17:00	
Code – Course : COMP6115001 – Object Oriented Analysis and Design			Class	: All Classes	
Lecturer : Team			Exam Type	: Online	
*) *Strikethrough the unnecessary items*					
The penalty for CHEATING is DROP OUT!!!					

Learning Outcomes:

LO 1 : Conceive the basics concepts of object-oriented analysis and design.
LO 2 : Use the knowledge to develop documentation for object-oriented software analysis and design using Unified Modelling Language.
LO 3 : Analyze any problem in any software application and find out the alternative solutions using object-oriented analysis and design approach.
LO 4 : Manage the software process and build software development teams based on object-oriented analysis and design approach.

I. Essay (20%)

1. **[LO 1 & LO 2, 5 points]** In object-oriented analysis and design paradigm, we can use the *Unified Process* methodology. Describe comprehensively the *phases* and the *workflow* of this method. Give some examples of its implementation.

2. **[LO 1 & LO 2, 5 points]** Object-oriented systems concepts show some important *features* including *object identity, classes, inheritance,* and *polymorphism.* Give detail explanations and examples or illustrations for those features.

3. **[LO 1 & LO 2, 5 points]** In developing system requirements, the initial effort of the development is the process of compiling **analysis domain/boundary**. What does it mean by the *domain analysis* and what are the purposes? (What are the advantages if there was a domain analysis document)?

4. **[LO 1 & LO 2, 5 points]** In UML Use Case diagram, there are *extension stereo type* (**<<extend>>**) and *inclusion stereo type* (**<<include>>**). What do these two things mean? Give some examples of their use.

Verified by,

[Kenny Jingga] (D6426) and sent to Program on Oct 26, 2021

II. Cases (80%)

To work on the following case, please pay attention to the last digit of your NIM (Student Number). Choose the system application theme that matches to the last digit of your NIM. Mistakes in choosing a theme will result in all answers being considered wrong. Example:

- If your NIM is: 2301922070, that means the last number of your NIM is 0, then you have to analyse for the **pharmacy application system**.
- If your NIM is: 2301922071, that means the last number of your NIM is 1, then you have to analyse for the **hospital application system**.

And so on.

Select one of the following business areas according to the last digit of your NIM as the scope of the project to be worked on:

0 = **pharmacy application system**,
1 = **hospital application system**,
2 = **human resources application system**,
3 = **tourism application system**,
4 = **product sales application system**,
5 = **service sales application system,**
6 = **property application system**,
7 = **entertainment application system**,
8 = **manufacturer application system**,
9 = **school application system**

Your tasks are:
1. **[LO 1, LO 2, LO 3, & LO 4, 20 points]** Determine the **functional** and **non-functional requirements** that may exist in the scope of selected applications. Set the analysis domain/boundary according to your assumptions.
2. **[LO 1, LO 2, LO 3, & LO 4, 20 points]** Define the use case modelling components at the analysis level such as *actor, use case scenario*, and all *use cases* (processes) according to the chosen business theme. Draw the ***Use Case Diagram*** and create the **use case description** for each *use case*!
3. **[LO 1, LO 2, LO 3, & LO 4, 20 points]** Draw the ***class diagram*** covers all possible objects in the system application you have defined. The class diagram includes all aspects such as ***object classes, attributes, relationships,*** dan ***methods***. As much as possible, also include the aspects of the hierarchical class structure: ***inheritances***.
4. **[LO 1, LO 2, LO 3, & LO 4, 20 points]** In terms of the project management for the application system you are working on, work also on the ***use case point estimation*** to calculate how much ***effort*** were needed to complete your system. Use the worksheets sample in your reference books, set the related numbers according to the description in the questions no 2 and 3 above. Assign a value for each technical complexity factors (13 factors) and choose one of the two PHMs (*Person-Hours Multiplier*), 20 or 28. If the standard cost of each team member is IDR 1,000,000 per hour, how much will it **cost** to complete your project.

-- Good Luck --

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