SYSTEM DEVELOPMENT

Description

System Development

Critically discuss and select appropriate systems development process models to address a

range of typical systems development problems. 3

Select and apply appropriately from a range of tools and techniques used in the various stages of systems development.

Guidelines and background to the assessment Hand in date

Assessment type

Question 1

An investment firm wants an asset trading system that will engage investors and brokers online to trade by accessing the stock market. The system must have the below requirements:

An investor through a graphical interface with an account can access the services of a broker. The investor needs to first have portfolio with an asset or assets. The broker then trades with the investor and accesses a list of databases and stock markets.

NB: Attributes should be determined by the student and modelling tools are required.

A software company has been contacted to help design and build the system.

(a) As the software project manager at the contracted software company, provide a formalized investment system’s Object Model and an instance diagram of the model with the following:

• An investor can only engage a broker at a time

• A stock market should be accessible by the investor and the broker via the trading asset system

• An investor can have many portfolios and assets

• The asset trading system should be accessible via a GUI and APIs for external users.

Draw a System Object Model for the situation above and explain the Object Model drawn. Justify why the object model can assist the analysis/design process of the system

(b) Provide a Use Case diagram for the Object Model question (a) above. Explain the Use Case and justify why Use Cases can be used to document system requirements.

(c) Provide a Sequence diagram, performed on a per Use Case basis for question (b) and examine the flow of method calls within the system.

(d) Provide a class diagram for the object model in (a) show the relation and association between the classes. Discuss 2 advantages of using class diagrams to document software with justifications as an OO CASE tool.

(e) Provide an object UML diagram based on the above UML class in (d) and explain the diagram. Explain using this example why UML is a good OO CASE tool for this example.

NB: Support your justification with relevant literature with articles indexed in high reputable places such as Scopus. Use journal articles such as Journals in IEEE Xplore, ACM digital library, Association for Information Systems (AIS) eLibrary, IET library, Engineering Index of Elsevier, BCS computer Journals etc. At least 70% of the justifications should come from scientific publications