

Question 1 [total = 50 points] 50

- ✓ A) List three advantages of agile (or evolutionary) software development methods compared with Waterfall model?

12/ [12 points]

- B) Consider the following Scenario or Project description:

You are a project manager required to develop a mobile app, called FindMe, that aims to continually connect children with their parents: 1) to enable parents send messages to their children and vice versa 2) to enable parents send fun quiz questions to their children and vice versa and 3) to enable parents and children find each others' locations. The mobile app needs to be aimed for parents and children older than 7 years old, and provide children friendly graphical user interface for answering and creating quiz questions. It assumes the use of a smart mobile with GPS capability.

You are a project manager assigned the responsibility to develop the above project, how would you manage the development of the above system? Particularly

- ✓ B.1) Which software process model (or models) would you use or apply? If you intend to apply more than model, indicate at what stage or for which component of the project each model is applied. Justify your answer.
- ✓ B.2) To develop a children friendly graphical user interface, what software development technique would advise using?

18/ [18 points]

- C) Consider the following software requirements:

20/ [20 points]

R1.0: The system shall allow inventory manager to search inventory items based on item number, item name, part of the item description, or category name. → Functional

R2.0: The search results of inventory items shall be displayed to system user in no more than 5 seconds.

R3.0: The system shall be easy to be operated by normal users and shall not take a long time to train new users to use it

R4.0: The system should allow inventory manager to view inventory and financial reports.

Choose the most correct answer from the following:

- 1) The above requirements describe a set of:
 - A. User requirements
 - B. System requirements
 - C. Both A and B
 - D. None of above.
- 2) The functional requirements are:
 - A. R1.0, R2.0
 - B. R1.0, R2.0, R4.0
 - C. R1.0, R4.0
 - D. None of above
- 3) The non-functional requirements are:
 - A. R1.0, R2.0
 - B. R2.0, R3.0
 - C. R1.0, R2.0, R4.0
 - D. None of above
- 4) The non-verifiable non- functional requirements are:
 - A. R3.0
 - B. R2.0
 - C. R3.0
 - D. R4.0
- 5) The mandatory (must have) requirements are:
 - A. All of them.
 - B. R1.0, R2.0
 - C. R1.0, R2.0, R3.0
 - D. None of above.

Question 2 [total = 50 points] 41

- A) Describe the common fundamental (or core) activities in all software development processes?

12 [12 points]

- B) What is the difference between focus group interviews and ethnography (observation) techniques when doing requirements elicitation?
When would you recommend the use of each? Provide one example for each.

15 [18 points]

C) Consider the following description or scenario:

4/ (20 points)

Rami would like to take a vacation from work next week. He opens the internet browser and navigates to the website of his company, logs in, and selects "new vacation" option. The system displays an empty vacation request form, along with the number of remaining vacation days for Rami. Rami makes sure that the total remaining vacation days covers his intended vacation period and enters the following information: vacation start date, end date, and a vacation note, then selects "submit" option. The system checks the form completed fully and displays a notification that the vacation request has been successfully submitted. The HR Manager, named Ahmad, receives a message alerting him that a vacation request has been submitted. Ahmad, who reviews and approves vacation requests, opens the system and approves Rami's request. Rami, then after, receives an email notification that his vacation request has been accepted.

1. List system actors from above scenario and describe each briefly.
2. Draw a use case diagram based on above scenario, showing the identified Actors and their respective use cases.

Question 1

(A) advantage of agile:

- 1 There will be a feedback from the customer, because there will be a meeting after each iteration but in waterfall model there is no feedback because the meeting with customer just in the requirement first stage.
- 2 change of requirement, agile allows the customer to change the requirement and discuss it with the software team after each iteration, ~~waterfall~~ and there is no change of requirement in waterfall.
- 3 agile divides the system in subsystems that means the customer will be able to use the system after finish the core module in it, and according to test of the system agile tests the subsystem after finish it, in waterfall the customer will use the system after finish it, and the test will be after finish the system it may cause a big problem, because correct the system after the implementation cost ~~more than~~ than corrected it ~~is a~~ ~~subsystem~~ very big
~~or waterfall~~

→ for GUI (prototyping)

B.2 software development technique [prototyping]

B.1 The all system will use the incremental process model, its divides the system in 4 stage, the distribution of each stage and the model will be as follow

- ① in sending msg in the application the model will be waterfall to start and finish this stage ~~first~~
- ② send fun quiz as sending message ~~no matter~~ waterfall
- ③ ^{or 2~~nd~~} in the location stage, will use [reverse-oriented process] because this stage ~~want~~ need to use other software in the mobile [GPS]
- ④ in stage to build the GUI, it is good to use prototyping to have an idea about the meaning of friendly GUI and if it acceptable or not

C

1. C

2. C

3. B

4. C

5. C

Question 2

(1) Requirements specification: in this activity there will be a high-level and low level description of the system it should include all details and specification of the system. Requirement here is what the system will do and what is the service that the system make it. this is the very important activity in the software development process, and ~~it take~~ no matter if it take along time, because if ~~it~~ it taken in right way the next activity will be in safe side [it is the contract between developer and customer]

~~(2) Design and implementation: this activity will be after analysis the requirement, it include how the system will achieve the requirement in the correct process and model.~~

(2) Design and implementation: after analyze the requirement its turn to Design the system according to its requirement ~~and implementation~~ developing and implementing this system in the correct software model, this activity is how the system will work.

3 testing and Validation : in this activity its the turn to test the system in many metrics according to what the system do, ~~and make sure that the~~ ~~make~~ test by the user is more ~~correct~~ ~~and~~ efficient because the developer can not test his work

4 Evolution : this activity to make sure that the system is in match with the customer requirement or not, and have the maintainability and efficiency

Q2
(B) Focus group interviews : are interviews between ~~group~~ the team of the software system and the company ~~that~~ which is need the system. in the interview there will be questions and answers to understand the requirements to the both team and customer. this technique is suitable ~~for~~ in many software system.

(x) ethnography : this technique dependant on social scientist go to the customer's workplace and see how they do their job, here ~~the~~ the customer will not tell the team about the system how to work. the requirements collected by observation. this technique is more practical in system which is hard to describe from the worker.

example

Question 2

C

① system actors:

main flow for the system:

- ① The user will login to the website of the using web browser.
- ② The user will select the option of 'new vacation'.
- ③ The users will fill the empty vacation request form with vacation start date and end date, note.
- ④ the request form show the remaining vacation days.
- ⑤ the user will select 'submit' to send the request to the system.
- ⑥ and show notification
- ⑦ the request will ~~receive~~^{send} to the HR
- ⑧ HR ~~submit~~^{approve} the request
- ⑨ the user will receive and email notification

alternative

if the vacation rejected by HR the notification on email will be "sorry" ---

