

Software Eng. Healy
(FURTHER REVISED COURSE)

(3 Hours)

[Total Marks : 60

- N.B. :** (1) Question No. 1 is **compulsory** and solve any **four** from remaining **five** questions.
In all attempt **five** questions.
(2) **Figures in to right** indicate marks **allotted** to the question/subquestion.

1. Case Study : (20 Marks - Compulsory Question)

CarShare.com aims to provide Car pooling for commuters in Mumbai and its suburbs. CarShare.com is expected to be a web based solution to enable car owners to share their vehicles with others. It is expected that frequent car users would register themselves to join a car pool which is most convenient to them in terms of location (i.e. Home location and office location) as well as in terms of timings. They can of course join one car pool while going to office and another while returning depending on their convenience. However once they commit to a particular car pool group they have to stick to it. In case a person wishes to withdraw from a particular group he/she has to give a 1 month notice to enable the group to find new members as also to settle any accounts within the group.

Usually car pool members have their own cars and they take turns in driving their car. This way there is no need to pay any money to each other. However some of the car pools may allow members 'who do not own cars. In such cases they have to monetize the expense and distribute the cost at the end of each month. However, the nature of such commercial arrangements was left to the group to decide. The person who initiated a new group could also specify entry criteria. In any case every person who is part of a carpool has to be a registered member of CarShare.com. For e.g. the group initiator could state that he was only interested in people traveling from Bandra to Nariman Point (start time 8 am . commence return journey at 7pm, five days a week) – He could further add that only senior executives of well known organizations would be admitted. Thus the group could decide the norms for accepting new members and these norms would have to be displayed on the portal.

Prior to getting access to any of the car pools registered on CarShare.com a person has to register as a member for which he is charged a one time registration fee. This is only to defray the cost of the welcome kit which consists of a membership card and contact details of other carpool members. The money is also spent on verifying the personal details of a new member given at the time of registering. The verification is done by a third party agency which visits the person either at home/office and checks the authenticity of the facts given in his online application form. Any changes in the information such as address, telephone number etc has to be updated by the member directly on the portal.

CarShare hopes to provide this as a service and build a large community of car owners and commuters. This could provide opportunity to start paid services in the future.

In this context answer the following questions :—

(Make Suitable assumptions about the case –however state those assumptions very clearly)

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| (a) Draw a highlevel Dataflow/Activity diagram to represent the process | 5 |
| (b) Design a suitable 1 page MIS report for the CEO of this firm | 5 |
| (c) Visualise the Use Case (write the dialog) – 'member joins a car pool' | 5 |
| (d) Draw the screen(s) required for the above Use Case. | 5 |

2. Write a note on Best Practices for gathering requirements. 10
3. Write a note on any **two** of the following lifecycle methods :— 10
 - (a) Spiral approach
 - (b) Rational's Unified Process (RUP)
 - (c) Waterfall Approach
4. Write a note on Software testing. Mention some of the important types of tests which are conducted on a software. What is functional testing? 10
5. Write a note on any **two** of the following Estimation Techniques used in Software :— 10
 - (a) Task Based estimation
 - (b) Function Point estimation
 - (c) COCOMO
6. Enumerate the various diagrams suggested under UML stating briefly their Purpose. 10