Roll Number:

Thapar Institute of Engineering and Technology, Patiala

Computer Science & Engineering Department

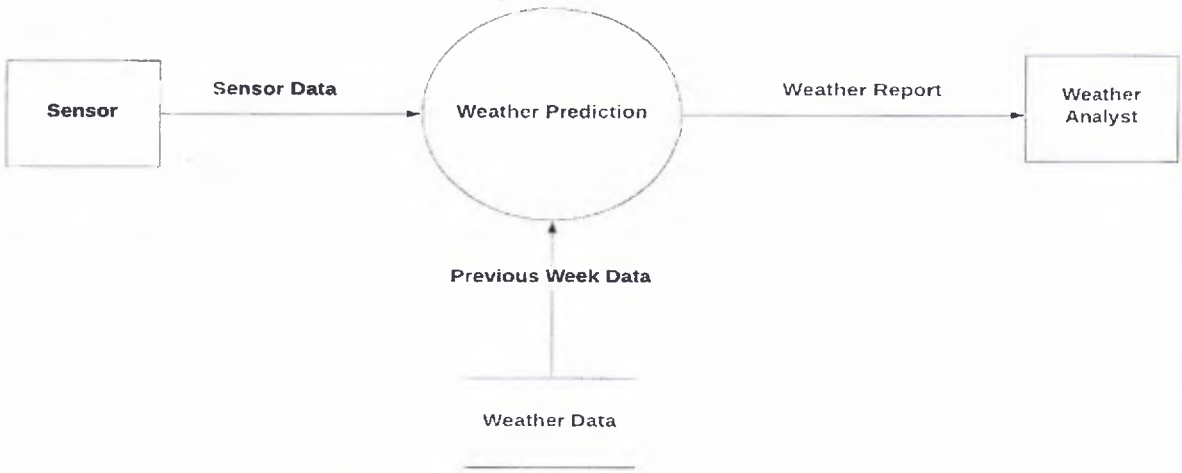
BE Third Year – CoE - (I Semester)
MST- 30 September 2019
Time: 2 hours
MM: 60

Course Code: UCS 503
Course Name: Software Engineering
Name of Faculty: Dr. Inderveer Chana, Dr. Ashima Singh, Dr. Vinod Bhalla, Dr. Sukhnandan Kaur and Ms.Harkiran Kaur

Note: *(i) Answers should be precise and legible*
(ii) Attempt all parts of a question together
(iii) Write Group No. (CoE) at the top of your answer book

Q1(a) Consider the requirement statement, "User should be able to check the status of his flight".
(i) How will you ensure the above requirement statement is complete and consistent?
(ii) Translate this customer requirement into technical requirement statement.
(b) How will you measure Usability of a software? (4,4,6)

Q2 For the following DFD



(a) Write the corresponding data dictionary entry for the 'Process'
(b) Analyze the design constraint(s) for this problem.
(c) What are the external interface requirements of this problem? (6,4,4)

Q3 HireMe company has developed a Web site for its services. The website facilitates as follows:
A person looking for a job must register (sign up) on the site after filling a form that contains his name, date of birth, nationality, marital status, and other information. The registration code will be used later, by this person, to « log in » and display or modify his information. When a company wants to subscribe to the site, it must sign up first. After that, it can put job offers for employees with certain characteristics. The registered company can also display

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the persons' applications but cannot modify them. The site administrator can display the persons' applications and the companies' job offers as well. If a company finds an appropriate person for the requested job, a contract is prepared by the administrator. After that, the contract must be confirmed by both the company and the person by sending each one an email to the administrator. Finally, the person's application and the company's job offer will be removed from the system.

(a) Analyze the functional, behavioral and information domains of the above case.
(b) Draw a Use Case Diagram depicting the above problem.
(c) Which other UML diagram can be used for modeling this scenario? (6,8,2)

Q4 A Carriage Company wishes to computerize various book keeping activities associated with its operations.
This carriage company owns a number of trucks. The carriage company receives consignments of various sizes measured in cubic meters. Once the consignment arrives at the office, the details of the volume, destination address, sender address etc. are entered into the computer. The computer would compute the transport charges depending upon the volume of the consignment and the destination and would issue a bill for the consignment. Once the volume of any particular destination becomes 500 cubic meters, the computer system should automatically allot the next available truck. Manager of the company can cancel or put the truck in delay mode if it is not completely loaded. Therefore, the manger should be able to view the status of different trucks at any time. When a truck is available and the required consignment is available for dispatch, the computer system should print the details of the consignment number to be forwarded along with the truck which would be checked by the security guard. The CEO of the company should also be able to view the average waiting period for different consignments. These statistics are important for him since he normally orders new trucks for future planning.
(a) Suggest a suitable process model for developing this software with reasons for your choice.
(b) Deploy Quality Function (QFD) for this problem statement
(c) Draw a Data Flow Diagram (up to Level 1) for depicting this problem. Make assumptions if required. (4,4,8)