1. Give some examples of the software engineering failures.
2. Following are the reasons for studying software engineering: modeling, problem solving, knowledge acquisition, rationale-driven activity. Describe each one of them.
3. Describe these concepts: requirement elicitation, analysis, system design, software configuration management.
4. Draw a use case diagram for the following scenario: Scenario 1: A software house in England is writing a software for households. The aim of the software is to ensure that the small children that are as young as 15 months or young should never go farther than 100 meters from their parent at any time whether when playing unattended. A feature of the software is such that a child can be registered by the parent in the application. Another feature is that the parent may track the student through a Battery Assisted Passive (BAP) RFID tag the child should be wearing and which is sensed by an Active Reader Active Tag (ARAT) RFID reader the parent should be wearing. The RFID reader should feed the data on temperature, humidity and status of whether an RFID is not visible any more to a Tracking feature which sends out a beep if a child’s RFID tag is out of scope. The Tracker should also make a sound if the child’s body temperature exceeds a normal body temperature.
5. Draw a class diagram: For the central library of the federal urdu university, a library management system is under construction. The library (which can be described by its name and address). The LMS recognizes all possible book items whether electronic or physical such as books, CD/DVDs, etc (which can be described by ISBN, name, subject, overview, publisher, pubDate and language). These items can be arranged according to the authors. Each book (physical or electronic) is an item and may be traced by (barcode, isbn, subject, etc). There can be multiple authors of the electronic or physical books and their can be multiple books of the same author. Author can be described by (name, biography, DoBirth). A patron/user can have an account (that can be described by name and address). From that account the patron may acquire 0 to 12 books at once or reserve 0 to 3 books at once. The books in the library are enumerated in a catalog. The catalog will have the records of each electronic or physical book. The catalog provides two other supports that are searching and managing. The librarian (described by name, address and position) may assist in these operations.

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6. Draw the state diagram: ATM is initially turned off. After the power is turned on, ATM performs startup action and enters Self Test state. If the test fails, ATM goes into Out of Service state, otherwise there is triggerless transition to the Idle state. In this state ATM waits for customer interaction. The ATM state changes from Idle to Serving Customer when the customer inserts banking or credit card in the ATM's card reader. On entering the Serving Customer state, the entry action readCard is performed. Note, that transition from Serving Customer state back to the Idle state could be triggered by cancel event as the customer could cancel transaction at any time. Serving Customer state is a composite state with sequential substates Customer Authentication, Selecting Transaction and Transaction. Customer Authentication and Transaction are composite states by themselves which is shown with hidden decomposition indicator icon. Serving Customer state has triggerless transition back to the Idle state after transaction is finished. The state also has exit action ejectCard which releases customer's card on leaving the state, no matter what caused the transition out of the state.
7. What are the different types of interviews?
8. Explain what is brainstorming and how does it work. Write about one page full without line spacing.
9. Explain what is JAD and how does it work. Write about one page full without line spacing.
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