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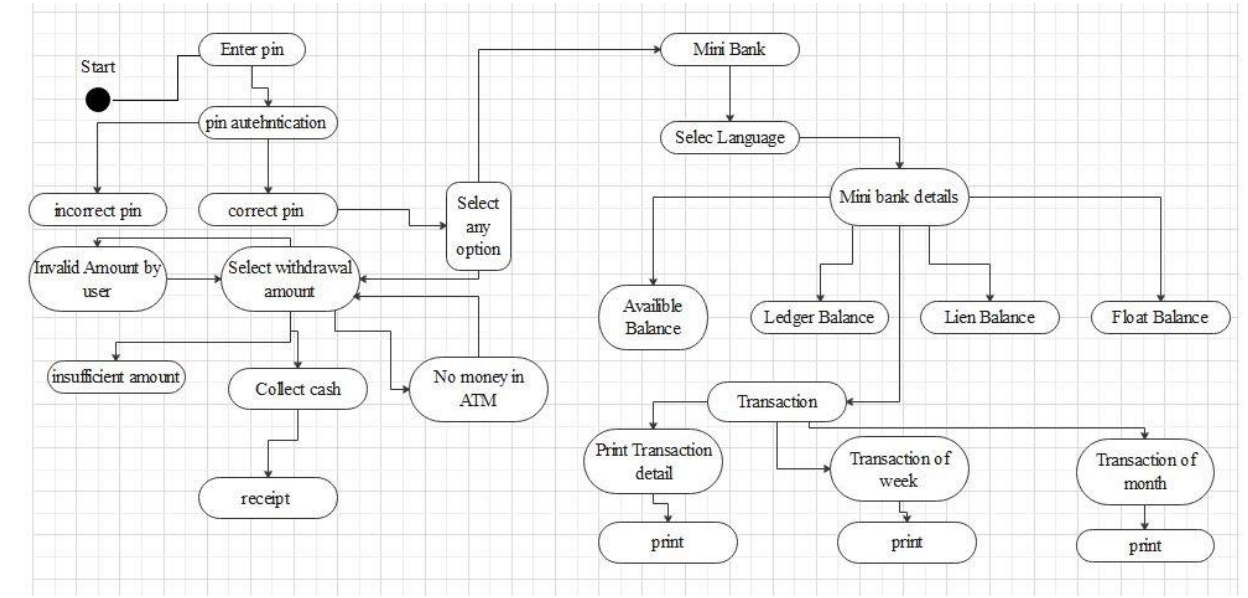
Dept & Semester: BS(SE) – 5th

Subject: Object Oriented Software
Engineering

Question #1 (16 Marks)

An ATM machine can be used for Money Withdrawal and getting Mini Account statement. Make a State Machine Diagram for these two cases.

ANSWER



Question #2 (10 Marks)

You have to make a personalized software for a consultancy firm. Some components of the software are those for which you already have code. Some parts of the software are such that you can find ready-to-be-used code from internet. If you want to embed both types of code into your product, and complete the software by coding the remaining part, what can you expect during this whole process? Will it be easy or hard? What problems you might face and how will you overcome those problems?

ANSWER

Adding the internet codes in your own code is known as reuse of codes. This is also known as ready-made reuse.

Software development is a field where we can reuse codes from different programmers. Required code might be available on some websites easily. While some websites don't allow copying whole code to reuse or have some terms and conditions that are been to follow strictly.

Benefits

It takes less time and effort to implement. A non-technical or a decent knowledge is enough to build a good-looking and multi-functional project. It increases the performance of your code, program or project.

By adding this kind of ready-made codes to your code have some benefits also like, it will be made in low cost, it reduces your time, improve quality of code by adding a professional code in your project code and improves the efficiency of the code as well.

Drawback

As there are many benefit but there are also some drawbacks there to interrupt the code like copyright claim from the coder/programmer, purchasing code from different websites for many dollars, hiring a programmer/coder to develop your remaining code or project.

These points sometimes become hard to complete the code or sometime easy.

Problems

- **Documentation and configuration issues**

There are cases when documentation does not exist or its poorly written. Sometimes we can even encounter a file that is too extensive and structured in a way that instead of facilitating the whole process only makes it more difficult.

- **Low flexibility of the coded elements**

Some of the elements might be coded without flexibility or tied with other elements so when these are being changed errors would occur or the desired effect could not be archived

- **Warranty and support**

Unfortunately it is not always guaranteed that we will be helped. And whenever we find a bug or any other problem we might need to wait for the authors to implement the fix in next updates it can take days, weeks or sometimes months.

- **Optimization**

As an effect these are packed up with excessive code which even written very well can slow your code/program down.

- **Testing and fixing bugs**

In case of ready-made codes it may happen that we'll find bugs in the original code. In this situation we have two ways of proceeding, we can contact the authors and wait for the fix (we never know how long it might take or if it will be fixed), or fix it ourselves. The second option can be problematic, because it requires debugging somebody else's code which needs time. Therefore additional time and cost would be required.

- **Time and cost estimation**

All the problems mentioned above make it harder to estimate time and cost related with such project.

Overcome

- After adding a reuse code from the internet we need to check it properly from head to toe, it decreases the amount of bugs and error and consumes less time to create a project.
- We need to manually check the code or if possible we can concern or get help from a professional or highly skilled programmer to check the certain code before adding it into main project. This will make a huge difference in the code and there will be very less chances to have errors or bugs in the code.
- Checking the code at the point where the problem is made and make it right on the spot so at the end we will have plenty of time to make changes in code and make it more efficient.
- We need to make our code/project more efficient and less costly so we need make it right and by making it right we need to resolve the errors and bugs on time and take help from an expert to make it more reliable and less costly.

Question #3 (24 Marks)

1. What is the difference between a Task and a Work Product? Explain in your own words and give an example of each.

ANSWER

Task and Work products

Task Modify existing software to correct errors, to adapt it to new hardware or to upgrade interfaces and improve performance. Design and develop software systems, using scientific analysis and mathematical models to predict and measure outcome and consequences of design While a Work Product is an output of a project. They are the lowest level of project work that are individually estimated, budgeted, assigned, executed, measured and controlled. Work products include both tangible things such as infrastructure installations and intangible things such as presentations.

Example of Work Product

There are many example of work product are, some of them are;

- Requirements
- Market Research
- Design
- Technical Component

Example of Task

There are also many different example of Task are available, some of them are;

- Requirements Gathering.
- High-Level Design.
- Low-Level Design.
- Development.
- Deployment.
- Maintenance.

2. There are different types of testing. State which techniques are performed by the developer and which of them are performed by the client.

ANSWER

Different Testing Techniques

- Unit Testing.
- Integration Testing.
- System Testing.
- Sanity Testing.

- Smoke Testing.
- Interface Testing.
- Regression Testing.
- Beta/Acceptance Testing.

Technique by Developers

- Code review
- Unit Testing
- Single-user performance testing.

Technique Performed by Clients

- Unit Testing
- Integration Testing
- System Testing

3. You are working on coding of a software in which a lot of calculations are involved. The calculations are quite easy to be done, but you do expect some inconsistency in the calculations because of some inner problem with the software. Would you rather go for Fault Avoidance technique or Fault Detection technique in the Testing Phase? Explain your answer.

ANSWER

While working on coding software that involve with lots of calculation, there quite chances that mistakes happen and code will create major or minor errors. If I'm working on a waterfall methodology and I'm facing issues in calculation (in the scenario) because of missing values and calculation and in the methodology it

creates a inner problem, I would go with Fault Detection Technique because it concerns itself with monitoring a system, identifying when a fault has occurred, and pinpointing the type of fault and its location. I would not prefer Fault avoidance technique although it's a very useful technique to use in some cases but in this scenario, my project or code might have a chance to add more errors and bugs and might not work even. Because in Fault Avoidance Technique it tries to reduce the probability of fault occurrence and tries to keep the system operational despite the presence of faults.

We can use the Fault Avoidance Technique in other different methodology for example in Egile model and etc. Because in this case we have to detect problems, errors etc in a complete or full phase so it's easy to use this Fault Avoidance Technique in this case.