

Question 1

- a) List the benefits of software reuse and explain why the expected lifetime of the software should be considered when planning reuse.

Benefits:

- Effective use of specialists
- Accelerated development
- Increased dependability
- Lower development costs
- Reduced process risk
- Standards compliance

The reason for the expected lifetime of the software should be considered when planning reuse:

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- b) What is regression testing? Explain how the use of automated tests and a testing framework such as JUnit simplifies regression testing.

Regression testing: A regression testing is testing the system to check that changes have not 'broken' previously working code.

Automated test: It checks the system that ensures the existing code is not created any new problems. JUnit is an automated test and testing framework that can seriously simplify regression testing as it can run the entire test suite automatically every time it changes. Automated testing includes its own checks to verify whether the test is successful or otherwise.

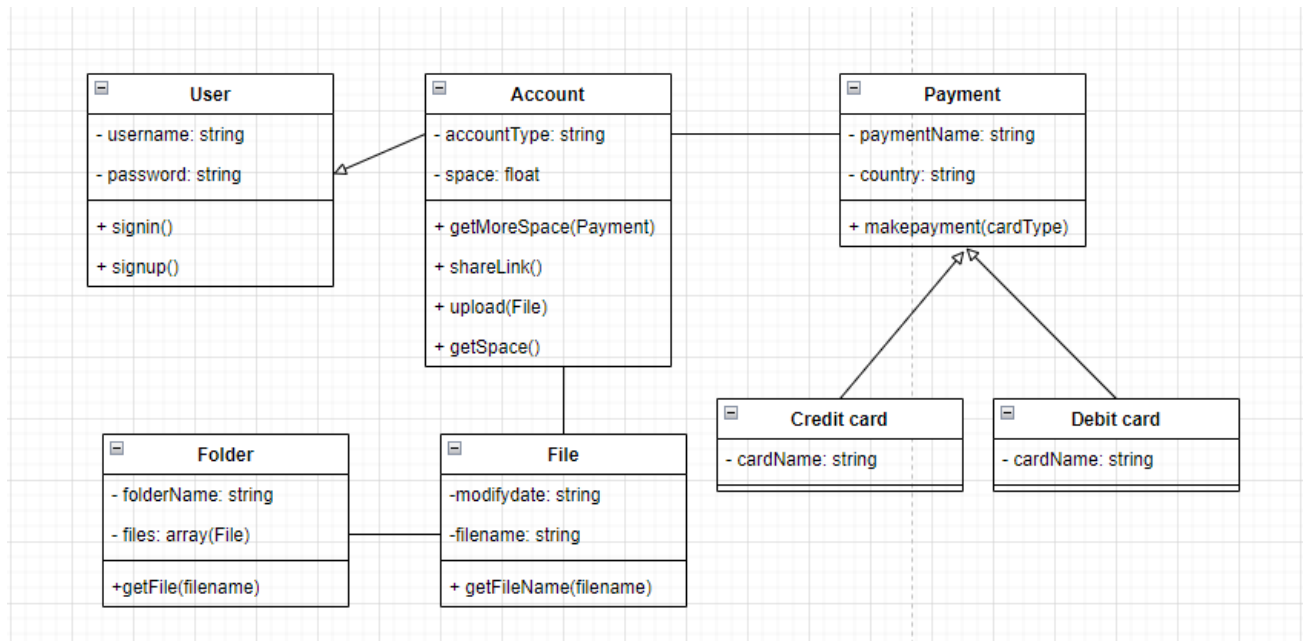
Question 2

(See description of the File Hosting System on next page...)

a) Propose a suitable architecture for such system.

Client-server model. It, in server-side, provide service-based access to application data for users, in client-side.

b) Draw a class diagram that shows the structure of files and directories (add necessary attributes and operations).



c) Design User Interface for the requirement "Advanced search files". Write an error message during the upload mentioned in the description.

file name

file extension

content

exit confirm

d) Write (at least 4) test cases for the requirement "Upload files".

Test Case	Upload files successfully
Related Use Case	Upload file
Context	Login successful as user
Input Data	File: secretLetter.pdf Size: 200KB
Expected Output	Show message: upload file successfully Direct user to file address
Test Steps	<ol style="list-style-type: none"> 1. Log in as user 2. Press upload file 3. Choose file in local directory 4. Press upload

Test Case	Upload files failed because oversize
Related Use Case	Upload file
Context	Login successful as user Available space: 5GB
Input Data	File: secretLetter.mp4 Size: 13GB
Expected Output	Show message: available space is insufficient Ask user to upgrade data Back to upload file
Test Steps	<ol style="list-style-type: none">1. Log in as user2. Press upload file3. Choose file in local directory

	4. Press upload
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Test Case	Upload files failed because lost internet connection
Related Use Case	Upload file
Context	Login successful as user Internet connection is lost.
Input Data	File: dota4.zip Size: 3GB
Expected Output	Show message: File will upload when connection is back File upload process status: temporarily stopped
Test Steps	1. Log in as user

	<ol style="list-style-type: none"> 2. Press upload file 3. Choose file in local directory 4. Press upload
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Test Case	Upload files failed because file format is not support
Related Use Case	Upload file
Context	Login successful as user
Input Data	File: viruss.key Size: 5MB
Expected Output	Show message: File format is not supported Back to upload file screen
Test Steps	<ol style="list-style-type: none"> 1. Log in as user 2. Press upload file 3. Choose file in local directory

FILE HOSTING SYSTEM

A file hosting system provides online file storage and file sharing. Users can upload their files to the server, organize them into folders, and share files publicly or keep them password protected.

Users must register and sign in to use the system services. Each user has a free 10 GB storage space on the system server to store their files. In the given space, users can create a directory tree to manage their files.

To upload files to the system server, at first, user selects a directory on the server in which he/she wants to store his/her files and requests to upload. Then, the system will show user local file system and ask his/her to select files (one or many) to be uploaded. After submitting the upload files, user is asked to wait while the upload process takes place. A message is shown to user to let his/her know the progression of the upload process. The system will check user storage space before performing the upload. If the storage space is

not enough for the upload files, the system will request user to buy new space before continuing the upload process. During the upload, if any of the local upload files is missing or there is a network error, the upload process is terminated, and an error message is shown to user. The upload can also be terminated by user at any time.

To share a file on the system server, user must create a shared link to the file so that one who has the link can download the file. User will be asked to set expiry date for the link. By default, the expiry date will be one year from the created date. Then, the system will let user choose if he/she wants to share the file publicly or privately. If the file is shared publicly, a link to the file will be created which user can copy or send email to anyone. In case the file is shared privately, the system will ask user to provide password to protect the file before creating the shared link. Protected file requires password to download.

The system provides advanced search feature that let user search, filter, and sort his/her files by combining multiple criteria, such as name, extension, upload date, size, contents, etc.

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