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PROJECT 1

VIRTUAL KEY FOR REPOSITORIES

PROJECT OBJECTIVE

As a Full Stack Developer, complete the features of the application by planning the development in terms of sprints and then push the source code to the GitHub repository. As this is a prototyped application, the user interaction will be via a command line.

USE OF THE FOLLOWING

Eclipse/IntelliJ: An IDE to code for the application
Java: A programming language to develop the prototype
Git: To connect and push files from the local system to GitHub
GitHub: To store the application code and track its versions
Scrum: An efficient agile framework to deliver the product incrementally
Search and Sort techniques: Data structures used for the project
Specification document: Any open-source document or Google Docs

REQUIREMENTS OF THE PROJECTS

The source code should be pushed to your GitHub repository. You need to document the steps and write the algorithms in it.
The submission of your GitHub repository link is mandatory. In order to track your task, you need to share the link of the repository. You can add a section in your document.
Document the step-by-step process starting from sprint planning to the product release.
Application should not close, exit, or throw an exception if the user specifies an invalid input.
You need to submit the final specification document which includes:
Project and developer details
Sprints planned and the tasks achieved in them
Algorithms and flowcharts of the application
Core concepts used in the project
Links to the GitHub repository to verify the project completion
Your conclusion on enhancing the application and defining the USPs (Unique Selling Points)

BACKGROUND OF THE PROJECT STATEMENT

Company Lockers Pvt. Ltd. hired you as a Full Stack Developer. They aim to digitize their products and chose LockedMe.com as their first project to start with. You're asked to develop a prototype of the application. The prototype of the application will be then presented to the relevant stakeholders for the budget approval. Your manager has set up a meeting where you're asked to present the following in the next 15 working days (3 weeks):

Specification document - Product's capabilities, appearance, and user interactions

Number and duration of sprints required

Setting up Git and GitHub account to store and track your enhancements of the prototype

Java concepts being used in the project

Data Structures where sorting and searching techniques are used.

Generic features and three operations:

Retrieving the file names in an ascending order

Business-level operations:

§ Option to add a user specified file to the application

§ Option to delete a user specified file from the application

§ Option to search a user specified file from the application

§ Navigation option to close the current execution context and return to the main context

· Option to close the application

The goal of the company is to deliver a high-end quality product as early as possible.

FLOW AND FEATURES OF THE APPLICATION

Plan more than two sprints to complete the application

Document the flow of the application and prepare a flow chart

List the core concepts and algorithms being used to complete this application

Code to display the welcome screen. It should display:

Application name and the developer details

The details of the user interface such as options displaying the user interaction information

Features to accept the user input to select one of the options listed

The first option should return the current file names in ascending order. The root directory can be either empty or contain few files or folders in it

The second option should return the details of the user interface such as options displaying the following:

Add a file to the existing directory list

§ You can ignore the case sensitivity of the file names

· Delete a user specified file from the existing directory list

§ You can add the case sensitivity on the file name in order to ensure that the right file is deleted from the directory list

§ Return a message if FNF (File not found)

· Search a user specified file from the main directory

§ You can add the case sensitivity on the file name to retrieve the correct file

§ Display the result upon successful operation

§ Display the result upon unsuccessful operation

· Option to navigate back to the main context

There should be a third option to close the application

Implement the appropriate concepts such as exceptions, collections, and sorting techniques for source code optimization and increased performance

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SPECIFICATIONS:

- Demonstrating the product capabilities, appearance, and user interactions
- To demonstrate the product capabilities, below are the sub-sections configured to highlight appearance and user interactions for the project:
 - 1 Creating the project in Eclipse
 - 2 Writing a program in Java for the entry point of the application
 - 3 Writing a program in Java to display Menu options available for the user
 - 4 Writing a program in Java to handle Menu options selected by user
 - 5 Writing a program in Java to perform the File operations as specified by user
 - 6 Pushing the code to GitHub repository

SPRINT PLANNING



Let's move to the next step of actual items that we've covered during the Design Sprint.

Week 1:

- I started our first stand-up with some ice-breaking mind boggling.
- I decided the schedule for the sprint, defined goals and introduced main components of the projects and listed problem statements.
- During this week, I've created the techniques to be used.
- I focused on generic features of the program and the operations required to do so.
- On Friday, at the end I conducted the Retrospective, the reflection exercise and asked myself to answer a few questions: - What important information have we discovered this week? - What was good? - What can be improved?

Week 2:

- Once I gathered and synthesized all data, and determined that I needed to build the main Menu and Sub menu for the assigned task. My problem statement was "How to Virtualize key for our Repositories?".
- I prepared the inspiration board of many solutions. Basically, I focused on the coding part with many ideas.
- I also sorted all operations in different categories: Listing the files, Adding the file, Searching the files and deleting the files.
- Once I reviewed the inspiration board and voted for the best solution.

Week 3:

- At the beginning of this week, I built designing part. We just had time to design the main welcome screen, so once it was ready, I've built the test plan and launched it.
- The usability test was completed I synthesized findings from our test by running the code with different parameters.
- I used a list of features of the project.

As the conclusion, I summarized all findings into the PowerPoint presentation

SPRINT COMPLETION

Sprints planning and Task completion

The project is planned to be completed in 3 sprints. Tasks assumed to be completed in the sprint are:

- Creating the flow of the application
- Initializing git repository to track changes as development progresses.
- Writing the Java program to fulfill the requirements of the project.
- Testing the Java program with different kinds of User input
- Pushing code to GitHub.
- Creating this specification document highlighting application capabilities, appearance, and user interactions.

SPRINT NO	DAY	WORK PLANNED	WORK STATUS
1	1	MAIN COMPONENTS OF PROJECT	COMPLETED
	2	PROBLEM STATEMENT	COMPLETED
	3	TECHNIQUES TO BE USED	COMPLETED
	4	GENERIC FEATURES PLANNING	COMPLETED
	5	OPERATIONAL FEATURES PLANNING	COMPLETED
2	1	MAIN MENU CREATION	COMPLETED
	2	SUB MENU CREATION	COMPLETED
	3	CODING	COMPLETED
	4	OPERATIONAL SORTING	COMPLETED
	5	CASE SENSITIVITY ADD ON	COMPLETED
3	1	DESIGN MAIN WELCOME SCREEN	COMPLETED
	2	CODE TESTING	COMPLETED
	3	DOCUMENTATION PART	COMPLETED
	4	TESTING OF THE PROJECT	COMPLETED
	5	LAUNCH OF THE PROJECT	COMPLETED

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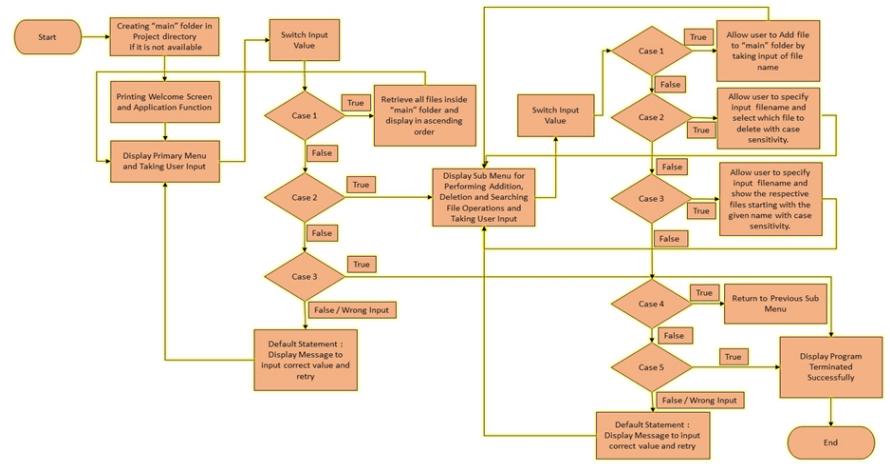
LINK TO GITHUB REPOSITORY

[FSJD/PROJECT 1 Virtual Key For Repositories at main · Shraddha-0208/FSJD · GitHub](https://github.com/Shraddha-0208/FSJD)

JAVA CONCEPTS USED IN THE PROJECT

1. Collections framework
2. File Handling
3. Sorting
4. Flow Control
5. Recursion
6. Exception Handling

FLOWCHART



ALGORITHM

1. Start
2. Print Options to list, manage files and exit
3. If choice is 1
 - a) Read all files in the directory
 - b) Sort files in ascending order using `Collections.sort()`
 - c) Print all the files
 - d) Goto 3
4. If the choice is 2
 - a) Print Options to add, search and delete files
 - b) If the choice is 1
 - i) Accept file name from the user
 - ii) Create a new file with that name
 - iii) Goto b
 - c) If the choice is 2
 - i) Accept file name from the user
 - ii) Delete the file with that name
 - iii) Goto b
 - d) If the choice is 3
 - i) Accept file name from the user
 - ii) Search for file with that name
 - iii) If file found print found
 - iv) Else print Not found
 - v) Goto b
 - e) If the choice is 4 goto
 - f) Goto 2
5. If the choice is 3 goto 7
6. Goto 2
7. Stop

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CODING

1 creating the project in eclipse

- open eclipse
- go to file -> new -> project -> java project -> next.
- type in any project name and click on "finish."
- select your project and go to file -> new -> class.
- enter **lockedme** in any class name, check the checkbox "public static void main(string[] args)", and click on "finish."

2 writing a program in java for the entry point of the application

```
import java.io.File;
import java.io.IOException;
import java.util.Arrays;
import java.util.Scanner;
import java.util.regex.Matcher;
import java.util.regex.Pattern;
public class lockedme {
    static String directory;
    File f_name;
    public lockedme() {
        directory = System.getProperty("user.dir");
        f_name = new File(directory + "/files");
        if (!f_name.exists())
            f_name.mkdirs();
    }
}
```

3 writing a program in java to display menu options available for the user

```
void displaymainmenu() {
    System.out.println(menu);
    try{
        System.out.print("choose the correct options from the given menu:");
        Scanner sc = new Scanner(System.in);
        int option = sc.nextInt();
        switch (option){
            case 1:{
                displayfiles();
                displaymainmenu();
            }
            case 2:{
                displaysubmenu();
            }
            case 3:{
                System.out.println("thank you for your valuable time");
                System.exit(0);
            }
            default: displaymainmenu();
        }
    }
    catch (Exception e){
        System.out.println("kindly choose the correct option like 1, 2 or 3");
        displaymainmenu();
    }
}
```

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CODING

```
void displaysubmenu() {
    system.out.println(submenu);
    try{
        scanner sc = new scanner(system.in);
        char[] input = sc.nextLine().toLowerCase().trim().toCharArray();
        char option = input[0];
        switch (option){
            case 'a' : {
                system.out.print("enter the file name which you want to add : ");
                string filename = sc.next().trim();
                addfile(filename);
                break;
            }
            case 'b' : {
                system.out.print("enter the file name which you want to delete : ");
                string filename = sc.next().trim();
                deletefile(filename);
                break;
            }
            case 'c' : {
                system.out.print("enter the file name which you want to search : ");
                string filename = sc.next().trim();
                searchfile(filename);
                break;
            }
            case 'd' : {
                system.out.println("moving back to the previous menu");
                displaymainmenu();
                break;
            }
            default : system.out.println("kindly enter the correct option a, b, c or d ");
        }
        displaysubmenu();
    }
    catch (exception e){
        system.out.println("kindly enter the correct option a, b, c or d ");
        displaysubmenu();
    }
}

public static void main(string[] args) {
    system.out.println(welcome_screen);
    lockedme menu = new lockedme();
    menu.displaymainmenu();
}
```

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CODING

```
4 Writing a program in Java to handle Menu options selected by user
void DisplayFiles() {
    if (f_name.list().length==0)
        System.out.println("The folder is empty , no files found");
    else {
        String[] list = f_name.list();
        System.out.println("The files in "+ f_name +" are :");
        Arrays.sort(list);
        for (String str:list) {
            System.out.println(str);
        }
    }
}

5 Writing a program in Java to perform the File operations as specified by user (FileOperations.java)
void AddFile(String filename) throws IOException {
    File filepath = new File(f_name +"/"+filename);
    String[] list = f_name.list();
    for (String file: list) {
        if (filename.equalsIgnoreCase(file)) {
            System.out.println("File " + filename + " already exists with similar name at " + f_name);
            return;
        }
    }
    filepath.createNewFile();
    System.out.println("File "+filename+" added to "+ f_name);
}
void DeleteFile(String filename) throws IOException{
    Pattern p=Pattern.compile("a-zA-Z0-9");
    File filepath = new File(f_name +"/"+filename);
    Matcher matcher= p.matcher(filename);
    String[] list = f_name.list();
    for (String file: list) {
        if (filename.equals(file) && filepath.delete()) {
            System.out.println("File " + filename + " deleted from " + f_name);
            return;
        }
    }
    System.out.println("Delete Operation failed. FILE NOT FOUND");
}
void SearchFile(String filename) {
    File f=new File("D:\ECLIPSE WORKSPACE\LockedMe.com\files");
    Pattern p=Pattern.compile("a-zA-Z0-9");
    File filenames[]=f.listFiles();
    Matcher matcher= p.matcher(filename);
    int flag=0;
    for(File ff: filenames) {
        if(ff.getName().equals(filename)) {
            flag=1;
            break;
        }
        else {
            flag=0;
        }
    }
    if(flag==1) {
        System.out.println("File is available, Status -> FILE FOUND : File " + filename + " exists at " + f_name);
    }
    else {
        System.out.println("File is not available, Status -> FILE NOT FOUND");
    }
}

6 Pushing the code to GitHub repository
• Open your command prompt and navigate to the folder where you have created your files.
cd <folder path>
• Initialize repository using the following command:
git init
• Add all the files to your git repository using the following command:
git add .
• Commit the changes using the following command:
git commit . -m <commit message>
• Push the files to the folder you initially created using the following command:
git push -u origin master
```

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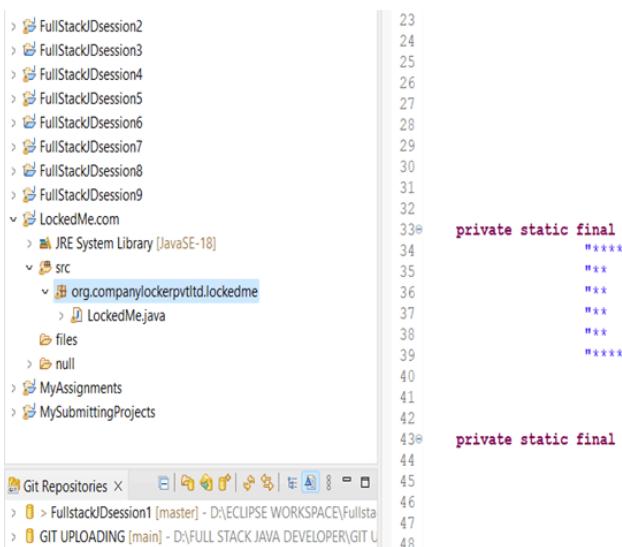
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SCREENSHOTS OF THE PROJECT

WELCOME SCREEN



```
> FullStackDSession2
> FullStackDSession3
> FullStackDSession4
> FullStackDSession5
> FullStackDSession6
> FullStackDSession7
> FullStackDSession8
> FullStackDSession9
> LockedMe.com
  > JRE System Library [JavaSE-18]
  < src
    > org.companylockerptl.lockedme
      > LockedMeJava
    < files
    > null
  > MyAssignments
  > MySubmittingProjects

Git Repositories X  E  S  C  O  M  I  C  A  L  I  C  E  P  U  S  E  W  O  R  K  S  P  A  C  E  F  u  l  l  s  t  a  c  k  D  s  e  s  s  i  o  n  1  [m  a  s  t  e  r] - D:\ECLIPSE WORKSPACE\FullstackDSession1
> FullstackDSession1 [master] - D:\ECLIPSE WORKSPACE\FullstackDSession1
> GIT UPLOADING [main] - D:\FULL STACK JAVA DEVELOPER\GIT U
```

```
23
24
25
26
27
28
29
30
31
32
330  private static final String MENU =
34          "*****MENU*****"
35          "*** 1. List the Files in the directory      ***\n"+
36          "*** 2. Adding , Deleting or Searching Files in the Directory ***\n"+
37          "*** 3. Exit the Program                         ***\n+";
38
39
40
41
42
430  private static final String SUBMENU =
44          "*****SUB-MENU*****"
45          "*** a > Add a file                          ***\n+
46          "*** b > Delete a file                        ***\n+
47          "*** c > Search a file                        ***\n+
48          "*** d > GoBack                                ***\n+
```

DISPLAY MENU SCREEN:

EXECUTING THE DISPLAY OF ALL FILES IN
THE DIRECTORY

```
*****Simplilearn project: LockedMe.com ****
*** Developed by: SHRADDA CHOUHAN ***
*****MENU*****
*** 1. List the Files in the directory
*** 2. Adding , Deleting or Searching Files in the Directory
*** 3. Exit the Program
*****CHOOSE THE CORRECT OPTIONS FROM THE GIVEN MENU:1
The files in D:\ECLIPSE WORKSPACE\LockedMe.com\files are :
April
August
December
February
January
July
June
March
May
November
October
September
*****MENU*****
*** 1. List the Files in the directory
*** 2. Adding , Deleting or Searching Files in the Directory
*** 3. Exit the Program
*****CHOOSE THE CORRECT OPTIONS FROM THE GIVEN MENU:
```

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SCREENSHOTS OF THE PROJECT

ADDING FILES:

EXECUTING THE ADDITION OF FILES IN THE DIRECTORY WITH CASE SENSITIVITY

```
**
** 1. List the Files in the directory      **
** 2. Adding , Deleting or Searching Files in the Directory  **
** 3. Exit the Program                    **
*****
CHOOSE THE CORRECT OPTIONS FROM THE GIVEN MENU:2
*****
*****SUB-MENU*****
**
** a > Add a file                      **
** b > Delete a file                     **
** c > Search a file                     **
** d > GoBack                           **
*****
a
Enter the File Name which you want to Add : Monday
File Monday added to D:\ECLIPSE WORKSPACE\LockedMe.com\files
*****
*****SUB-MENU*****
**
** a > Add a file                      **
** b > Delete a file                     **
** c > Search a file                     **
** d > GoBack                           **
*****
b
Enter the File Name which you want to Add : monday
File monday already exists with similar name at D:\ECLIPSE WORKSPACE\LockedMe.com\file
*****
*****SUB-MENU*****
**
** a > Add a file                      **
** b > Delete a file                     **
** c > Search a file                     **
** d > GoBack                           **
*****
```

SEARCHING FILES:

EXECUTING THE SEARCH OF FILES IN THE DIRECTORY WITH CASE SENSITIVITY

```
Kindly Enter the correct option a, b, c or d
*****
*****SUB-MENU*****
**
** a > Add a file                      **
** b > Delete a file                     **
** c > Search a file                     **
** d > GoBack                           **
*****
c
Enter the File Name which you want to Search : monday
File is not available, Status -> FILE NOT FOUND
*****
*****SUB-MENU*****
**
** a > Add a file                      **
** b > Delete a file                     **
** c > Search a file                     **
** d > GoBack                           **
*****
c
Enter the File Name which you want to Search : Monday
File is available, Status -> FILE FOUND : File Monday exists at D:\ECLIPSE WORKSPACE\LockedMe.com\files
*****
*****SUB-MENU*****
**
** a > Add a file                      **
** b > Delete a file                     **
** c > Search a file                     **
** d > GoBack                           **
*****
```

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SCREENSHOTS OF THE PROJECT

DELETING FILES:

EXECUTING THE DELETION OF FILES IN THE DIRECTORY WITH CASE SENSITIVITY

```
b
Enter the File Name which you want to Delete : monday
Delete Operation failed. FILE NOT FOUND
*****SUB-MENU*****
** a > Add a file
** b > Delete a file
** c > Search a file
** d > GoBack
*****
b
Enter the File Name which you want to Delete : Monday
File Monday deleted from D:\ECLIPSE WORKSPACE\LockedMe.com\files
*****SUB-MENU*****
** a > Add a file
** b > Delete a file
** c > Search a file
** d > GoBack
*****
```

EXIT FROM THE PROJECT:

EXECUTING THE GO BACK FROM THE SUB MENU N EXIT FROM THE MAIN PROJECT

```
-----
b
Enter the File Name which you want to Delete : monday
Delete Operation failed. FILE NOT FOUND
*****SUB-MENU*****
** a > Add a file
** b > Delete a file
** c > Search a file
** d > GoBack
*****
b
Enter the File Name which you want to Delete : Monday
File Monday deleted from D:\ECLIPSE WORKSPACE\LockedMe.com\files
*****SUB-MENU*****
** a > Add a file
** b > Delete a file
** c > Search a file
** d > GoBack
*****
d
Moving back to the previous menu
*****MENU*****
**
** 1. List the Files in the directory
** 2. Adding , Deleting or Searching Files in the Directory
** 3. Exit the Program
*****
CHOOSE THE CORRECT OPTIONS FROM THE GIVEN MENU:3
THANK YOU FOR YOUR VALUABLE TIME
```

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UNIQUE SELLING POINTS

1. The application is designed to keep on running and taking user inputs even after exceptions occur. To terminate the application, appropriate option needs to be selected.
2. The application can take any file/folder name as input. Even if the user wants to create nested folder structure, user can specify the relative path, and the application takes care of creating the required folder structure.
3. User is also provided the option to write content if they want into the newly created file.
4. The application doesn't restrict user to specify the exact filename to search/delete file/folder. They can specify the starting input, and the program searches all files/folder starting with the value and displays it. The user is then provided the option to select all files or to select a specific index to delete.
5. The application also allows user to delete folders which are not empty.
6. The user is able to seamlessly switch between options or return to previous menu even after any required operation like adding, searching, deleting or retrieving of files is performed.
7. When the option to retrieve files in ascending order is selected, user is displayed with two options of viewing the files.
 - 7.1. Ascending order of folders first which have files sorted in them,
 - 7.2. Ascending order of all files and folders inside the “main” folder.
8. The application is designed with modularity in mind. Even if one wants to update the path, they can change it through the source code. Application has been developed keeping in mind that there should be very less “hardcoding” of data.

CONCLUSION

Further enhancements to the application can be made which may include:

- Conditions to check if user is allowed to delete the file or add the file at the specific locations.
- Asking user to verify if they really want to delete the selected directory if it's not empty.
- Retrieving files/folders by different criteria like Last Modified, Type, etc.
- Allowing user to append data to the file.