Full Stack Java Developer Course

Phase-1: Implement OOPS using JAVA with Data Structures and Beyond

Project: LockMe.com

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Table of Contents

Project and developer details

LockedMe.com is a system used for file management the system includes the following features:

- Display and welcome screen that includes the following options:
  - First Option: Return the current file names stored in the system in ascending order
  - 2nd Option Manage Files which includes:
    - Add a file to the existing directory list
    - Delete a user specified file from the existing directory list
    - Search a user specified file from the main directory
    - Option to navigate back to the main context
  - 3rd Option to close the system

System was developed by Sulaiman Al Ruqaishi, contact details specified in the first and the last page.

Sprints planned and the tasks achieved in them

The project will constitute of X key sprints, which are the following:

- Sprint 1: Coding the display welcome screen along with the following
    - options displaying the user interaction information
    - Features to accept the user input to select one of the options listed

- Sprint 2: Coding the 1st option: Returning the current file names in ascending order
    - Root directory can be either empty or contain few files or folders in it

- Sprint 3: Coding the 2nd option: Returning the details of the user interface with options displaying the following: A) Add D) Delete S) Search N) Navigate Back)

    - Sprint 4: Coding Option A: Add a file to the existing directory list

      Sprint 5: Coding Option B: Delete a user specified file from the existing directory list

      Sprint 6: Coding Option C: Search a user specified file from the main directory

      Sprint 7: Coding Option D: navigate back to the main context

Sprint 8: Coding the 3rd option: close the application

The following visuals show the progression of sprints compilation:

Day 0, 14th of July 2021:

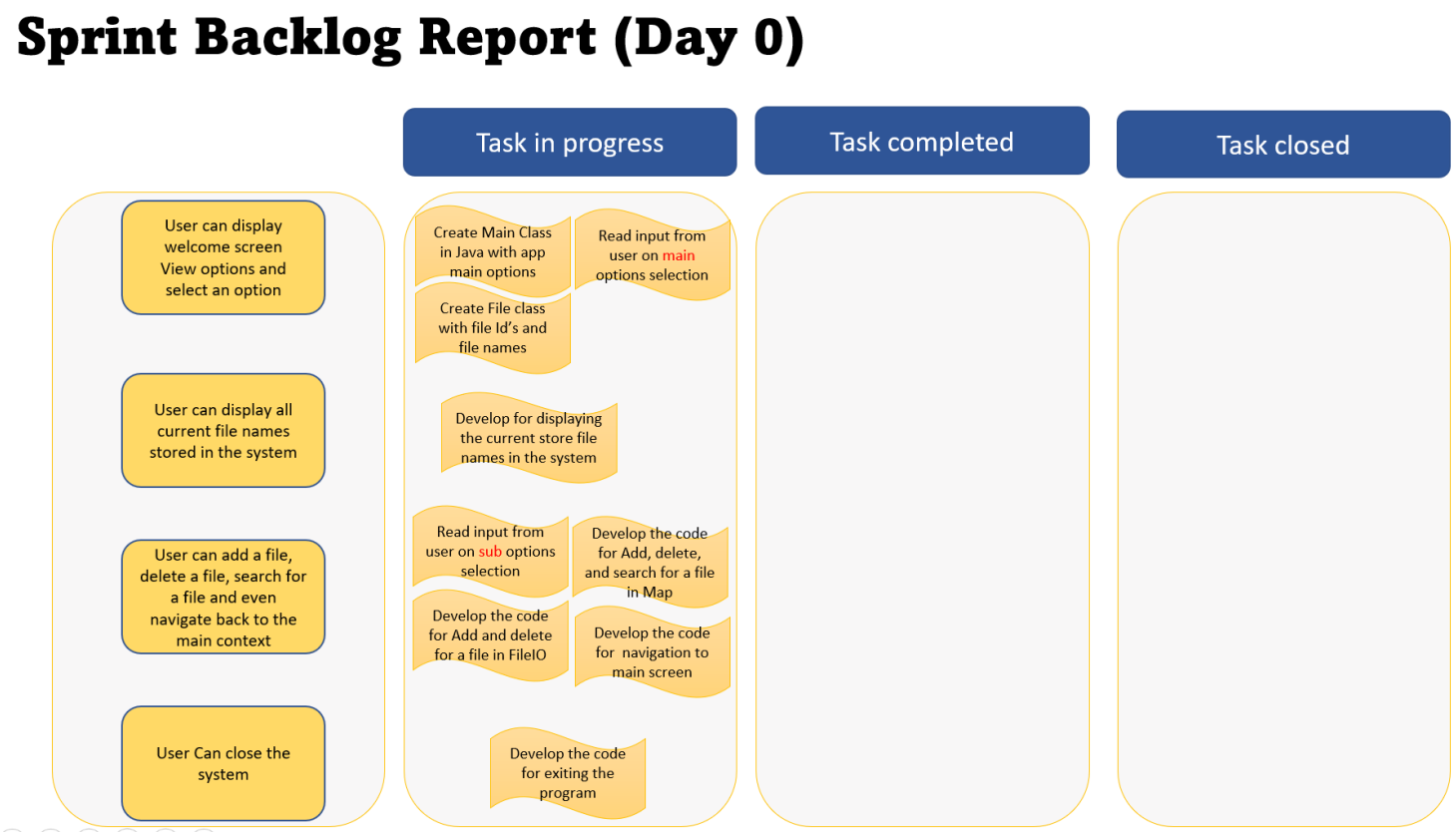


Figure 1: Sprint Backlog Report for Day ***0****, 14th of July 2021*

In Day 0, the focus was on developing the story lines, translating them to sprints and breaking down each sprint to key tasks. Figure 1 visualizes the sprints the and the tasks developed. Due to the limited time each sprint originally was planned to 2 days.

Day 1, 19th of July 2021:

The focus of Day 1 was to complete the first 3 main tasks for related to sprint 1 ***"User can display welcome screen view options and select an option".*** The following code was used to display the options into the system

Task1: Create Main Class in Java with app main options

Task 2: Create File map to store file Id's and file names

```
public class Main {

    public static void main(String[] args) {
        // TODO Auto-generated method stub

        BufferedReader fromUser = null;  //BufferReader and Reader in general is Char stream classes

        fromUser = new BufferedReader(new InputStreamReader(System.in));      //InputStreamReader used for reading line in console


  Map<Integer, String> fileSet = new TreeMap<>(); // Need to use Tree map in order to display in ascending order


  String selection = null;  // selection is used to listen to user input of main options

  int number = 0;


      System.out.println("|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|");
  System.out.println("\n Welcome to LockedMe.com");
  System.out.println("\n This application is developed by Sulaiman Al Ruqaishi from Company Lockers Pvt. Ltd");
  System.out.println("\n This application helps clients to manage their files");
  System.out.println("\n Please choose one of the following options: ");
  System.out.println(" 1> Display the list of files currently saved in the system ");
  System.out.println(" 2> Manage files in the system ");
  System.out.println(" 3> Close the application ");
```

Task2 (Part of the code): Read input from user on main options selection

```
    try {
        selection = fromUser.readLine();

        number = Integer.parseInt(selection);

        if (number == 1) {
            System.out.println(" Your selection is option "+ selection);
            System.out.println(" In this option you will see all files currently saved in the system ");
            System.out.println(fileSet);
```

All 3 tasks were completed and moved to task completed status in Day 1, no issues were raised. Figure 2 shows the Sprint Backlog Report raised at the end of Day 1.

Sprint Backlog Report (Day 1)

Figure 2 Sprint Backlog Report for Day 1, 19th of July 2021

Day 2, 20th of July 2021:

Since at this stage there are still no filenames stored in the system/map. The objective of day 2 will be then to complete the tasks related to Sprint 3, ***"User can add a file, delete a file, search for a file and even navigate back to the main context"*** and later come back for sprint 2 once we have some data to display.

Task1: Read input from user on sub options selection

```
String selection2 = null; // selection2 is used to listen to user input of sub options
```

```
System.out.println("|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|");
System.out.println(" Your selection is option "+ selection);

System.out.println(" Please choose which manage option you would like to do: ");
System.out.println(" A> Add a file ");
System.out.println(" B> Delete a file ");
System.out.println(" C> Search for a spacific file ");
System.out.println(" D> Navigate to main screen ");

selection2 = fromUser.readLine();
char2 = selection2.charAt(0);

if (char2 == 'A') {
```

Task2 (Part of the code): Develop the code for **Add**, delete, and search for a file in Map

```
System.out.println("|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|");
System.out.println(" Your selection is option "+ selection);

System.out.println(" Please choose which manage option you would like to do: ");
System.out.println(" A> Add a file ");
System.out.println(" B> Delete a file ");
System.out.println(" C> Search for a spacific file ");
System.out.println(" D> Navigate to main screen ");

selection2 = fromUser.readLine();
char2 = selection2.charAt(0);

if (char2 == 'A') {

    System.out.println(" Please specify the new file ID ");

    selection = fromUser.readLine();

    pickedFId = Integer.parseInt(selection);

    System.out.println(" Please Insert the name of the file you want to add ");

    pickedFName = fromUser.readLine();


    fileSet.put(pickedFId, pickedFName);  //Storing file id and file name in the map
```

Task2 (Part of the code): Develop the code for Add, **Delete**, and search for a file in Map

```
}else if (char2 == 'B') {

    System.out.println(" Please specify the ID of the file you want to delete ");

    selection = fromUser.readLine();

    pickedFId = Integer.parseInt(selection);


  fileSet.remove(pickedFId);
```

Task2 (Part of the code): Develop the code for Add, Delete, and **search** for a file in Map

```
}else if (char2 == 'C') {

    System.out.println(" Please specify the file name that you want to search: ");
    selection = fromUser.readLine();

    boolean isFileThere = fileSet.containsValue(selection);

    // This will search for the file and respond if the file name is there or not

    if (isFileThere) {

        System.out.println("The File "+selection+" is saved in the system");
    }else {
        System.out.println("The File "+selection+" is not saved in the system");
    }
```

Task3 (Part of the code): Develop the code for **Add** and delete a file in FileIO.

```
if (char2 == 'A') {

    System.out.println(" Please specify the new file ID ");

    selection = fromUser.readLine();

    pickedFId = Integer.parseInt(selection);

    System.out.println(" Please Insert the name of the file you want to add ");

    pickedFName = fromUser.readLine();


    fileSet.put(pickedFId, pickedFName);  //Storing file id and file name in the map

    FileOutputStream stream = null;
    try {

        stream = new FileOutputStream(pickedFName); // Creating a new file with the picked file name by the user

        File f = new File(System.getProperty("user.dir"),pickedFName);
```

Task3 (Part of the code): Develop the code for Add and **delete** a file in FileIO.

```
}else if (char2 == 'B') {

    System.out.println(" Please specify the ID of the file you want to delete ");

    selection = fromUser.readLine();

    pickedFId = Integer.parseInt(selection);

    Set<Map.Entry<Integer, String>> mapEntry = fileSet.entrySet();

    String TValue;
    TValue = null;

    for (Entry<Integer, String> entry: mapEntry) {
        Integer key = entry.getKey();
        String value = entry.getValue();

        if (key == pickedFId) {
            TValue = value;
        }
    }

    fileSet.remove(pickedFId);

    FileOutputStream stream = null;
    try {
        stream = new FileOutputStream(TValue);
        File f = new File(System.getProperty("user.dir"),TValue);
        stream.close();  // Deleting both stream and file specified by suer
        f.delete();
```

Task4 (Part of the code): Develop the code for navigation to main screen

.

Challenge: This was one of the challenges faced, as initially once I executed the sub menu the program would end. How to keep asking the user if he/she wanted to use another option in the sub menu or he wanted to leave to the main menu and in the main menu once again ask the user if he wanted to use option in the main menu again before the program terminates.

Solution: Developed the following nested white statement to manage the navigation between main and sub menu, below explains the logic followed in the code. The complete code can be found in the Main.java file

```
main menu {
String ActiveStatus;
ActiveStatus = "Yes";
String ActiveStatus2;
ActiveStatus2 = "Yes"


While (ActiveStatus){

Option 1 Display
Option 2 Manage
Option 3 Exit Program (Close)

If User pics  2 it goes to sub menu
if User pics 3 ActiveStatus is set to "No" and the loop is broken

 sub menu{

While (ActiveStatus2){

 Option A  Add
 Option B  Delete
 Option C Search
 Option D Navigate to main

if user pics D it goes to main menue
if User pics D ActiveStatus2 is set to "No" and the loop is broken  and goes to main menue While Loop
                }

        }

}
}
```

Figure 3 Logic followed for the navigation between main and sub menu

All tasks related to **Sprint 3,** *"User can add a file, delete a file, search for a file and even navigate back to the main context"* were completed, following the completion, Sprint Backlog Report was issued at the end of Day 2

Sprint Backlog Report (Day 2)

Figure 4 Sprint Backlog Report for Day 2, 20th of July 2021

Day 3, 21st of July 2021:

At this stage, the code for adding and deleting files into both Map and FileIO is complete, we can now proceed to solve Sprint 2 ***"User can display all current file names stored in the system".*** Below code shows how we were able to solve it.

Task1: Develop the code for displaying all entries in the Map

```
    System.out.println("|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|");
System.out.println("\n Welcome to LockedMe.com");
System.out.println("\n This application is developed by Sulaiman Al Ruqaishi from Company Lockers Pvt. Ltd");
System.out.println("\n This application helps clients to manage their files");
System.out.println("\n Please choose one of the following options: ");
System.out.println(" 1> Display the list of files currently saved in the system ");
System.out.println(" 2> Manage files in the system ");
System.out.println(" 3> Close the application ");




try {
    selection = fromUser.readLine();

    number = Integer.parseInt(selection);

    if (number == 1) {
        System.out.println(" Your selection is option "+ selection);
        System.out.println(" In this option you will see all files currently saved in the system ");
        System.out.println(fileSet);
```

Day 3 also included the initiation of further testing of the project code to ensure that the code works seamlessly. The testing activity is planned for 2 days and might spill into Day 5. At the end of Day 3 a sprint Backlog report was issued which can be seen below in figure

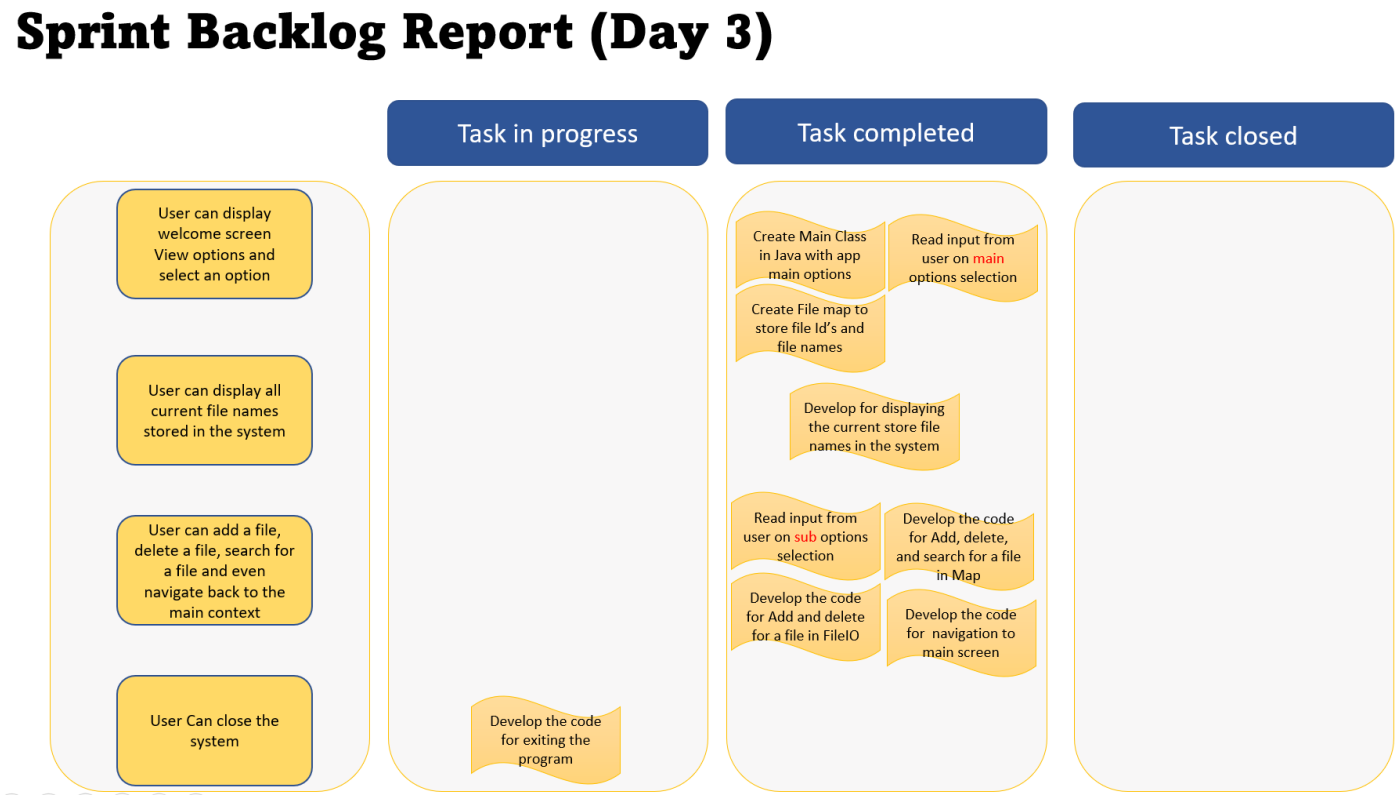


Figure 5 Sprint Backlog Report for Day 3, 21st of July 2021

Day 4, 22nd of July 2021:

The focus of Day 4 is to complete the final Sprint 4 ***"User Can close the system",*** and as well to continue the project code testing. For Sprint 4 the code below was written which is related to the logic developed during the development of Sprint 3. To exit the program we simply assign the variable **ActivateStatus** to "No" breaking the loop and accessing **System.exit(0)** to exit the program.

```
}else if (number == 3) {
    System.out.println(" Your selection is option "+ selection);
    System.out.println(" The system will now close, Thank you for using lockedMe.com ");
    System.out.println("|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|");
    ActiveStatus = "No"; // While loop condition for termination
    System.exit(0); // Terminate current running JVM
```

Continue Day 4, 22nd of July 2021:

Following the code testing process, the code compiled and ran smoothly however the following issues were discovered:

- While selecting options for the main menu, if nothing was inserted or if a char is inserted and simply Enter
- While selecting option in the sub menu and selecting Add file if File ID is specified as String or Char `java.lang.NumberFormatException` error was thrown
- While selecting option in the sub menu and selecting Delete file if file ID specified for deletion is not in the map than `java.lang.NullPointerException` error was thrown

At the end of Day 4, after completing Sprint 4 and the Project Testing exercise, the following Sprint Backlog Report was issued.

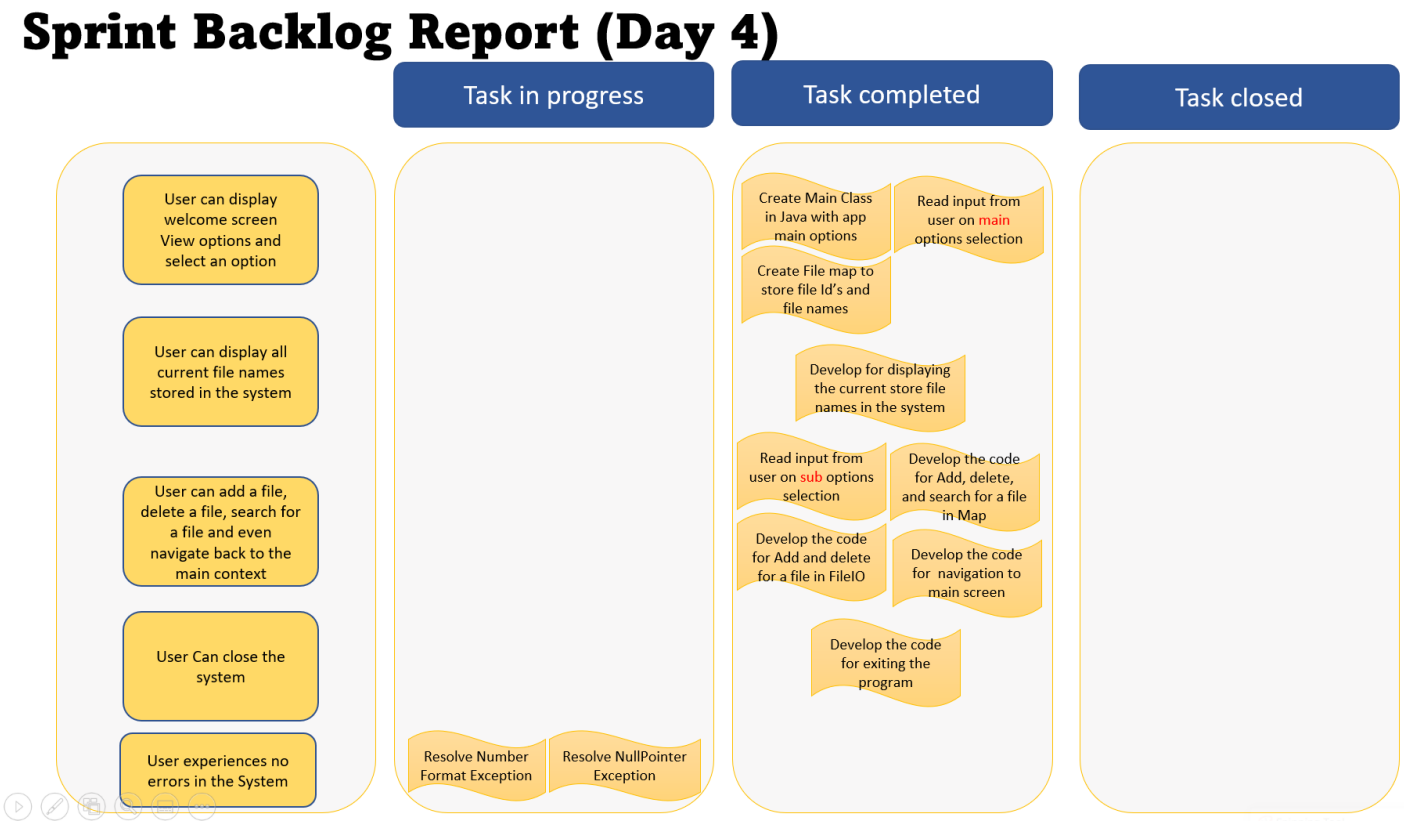


Figure 6 Sprint Backlog Report for Day 4, 22nd of July 2021

Day 5, 23nd of July 2021:

The focus of Day 5 will be to complete Sprint 5 ***"User experiences no errors in the System".***

Task1: Resolve Number Format Exception

As a background while selecting options for the main menu, if nothing was inserted or if a char is inserted `java.lang.NumberFormatException` error was thrown

This issue was resolved via exception handling

```
} catch (NumberFormatException e) {
    // TODO Auto-generated catch block
    //e.printStackTrace();

    System.out.println("The option you entered is not correct, please select an integer option between 1 and 3");

}catch (IOException e) {
    // TODO Auto-generated catch block
    e.printStackTrace();


}
```

Task 2: Resolve NullPointer Exception

As background while selecting option in the sub menu and selecting Delete file if file ID specified for deletion is not in the map than `java.lang.NullPointerException` error was thrown

This issue was resolved via exception handling

```
}catch(NumberFormatException e) {

    System.out.println("\n Youve not entered a valid fileID \n");

}catch(NullPointerException e) {

    System.out.println("\n The File ID you specified is not stored in the sytem \n");

}
```

At the end of day 5 with Sprint 5 and the rest of the sprints completed the final Sprint Backlog Report shown in figure 7 below is issued marking all Tasks as closed.

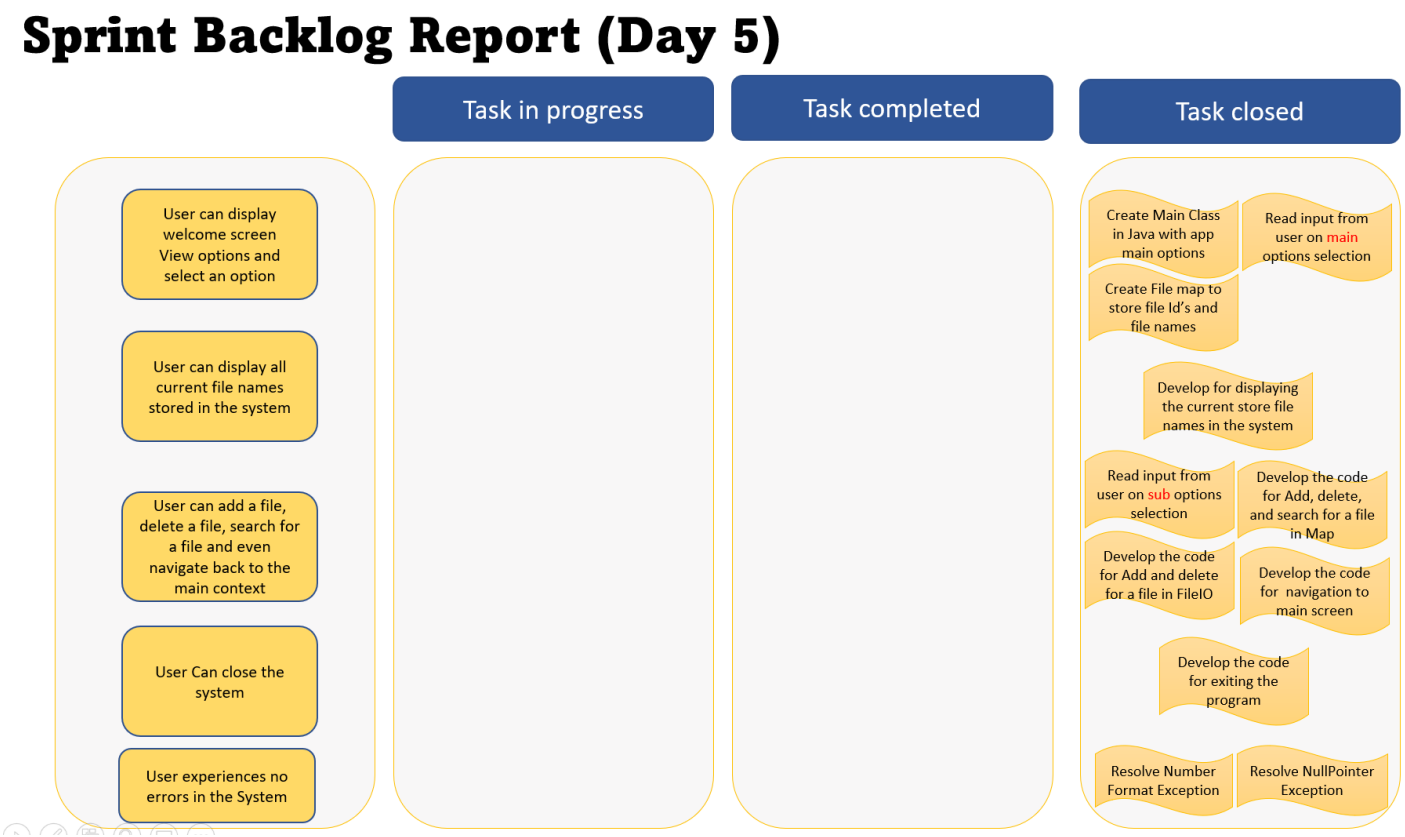
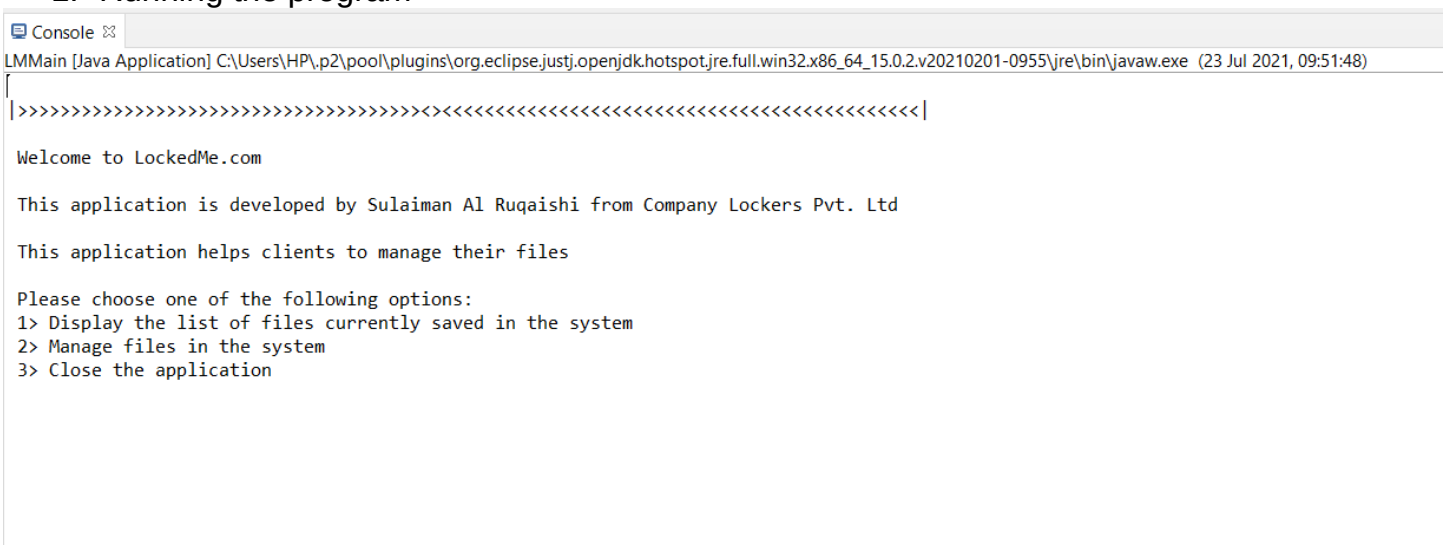


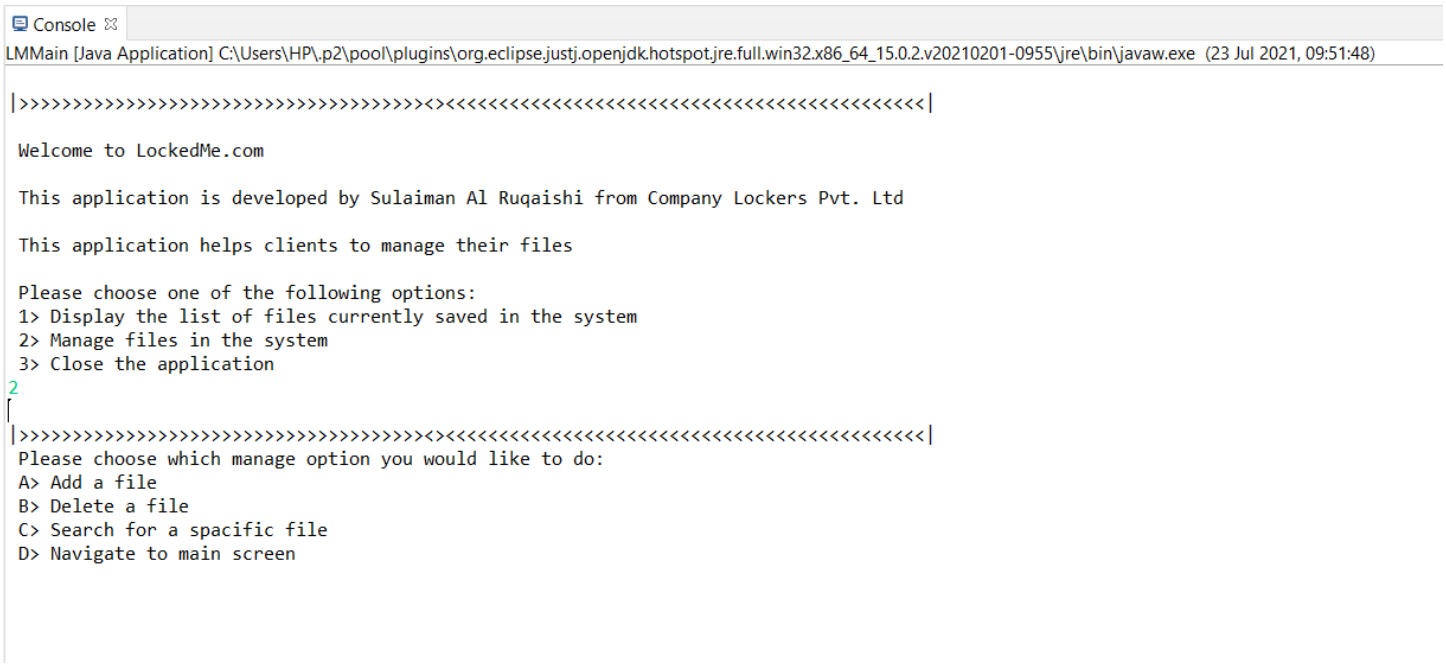
Figure 7 Sprint Backlog Report for Day 5, 23rd of July 2021

LockedMe System in Action & Product Specification

1. Running the program



2. Inserting option 2



3. Inserting option A

```
|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
A
 Please specify the new file ID
```

4. Specifying key 1 and file name File1

```
|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
A
 Please specify the new file ID
1
 Please Insert the name of the file you want to add
File1

File ID 1 is now added

{1=File1}

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
```

5. Option A again and Specifying key 2 and file name File 2

```
|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
A
 Please specify the new file ID
2
 Please Insert the name of the file you want to add
File2

File ID 2 is now added

{1=File1, 2=File2}

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
```

5. Selecting Option C again and Specifying File2 to be searched

```
|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
C
 Please specify the file name that you want to search:
File2
The File File2 is saved in the system

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
```

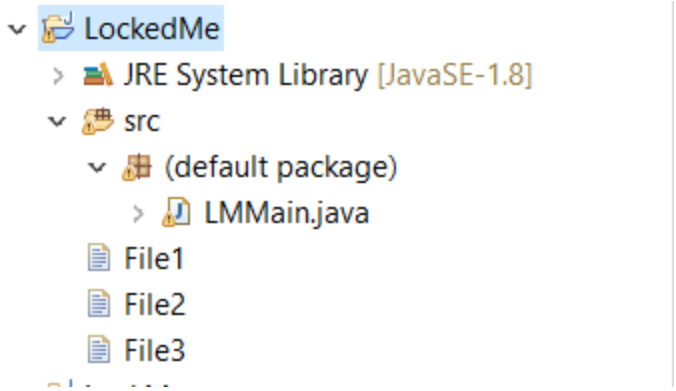
6. Adding a file with Id 3 and file name file3

```
|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
A
 Please specify the new file ID
3
 Please Insert the name of the file you want to add
File3

File ID 3 is now added

{1=File1, 2=File2, 3=File3}

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
```

7. Navigating to main menu and selecting 1 to display all records sorted by key

```
|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
D

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|

 Welcome to LockedMe.com

 This application is developed by Sulaiman Al Ruqaishi from Company Lockers Pvt. Ltd

 This application helps clients to manage their files

 Please choose one of the following options:
 1> Display the list of files currently saved in the system
 2> Manage files in the system
 3> Close the application
1
 Your selection is option 1
 In this option you will see all files currently saved in the system
{1=File1, 2=File2, 3=File3}

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|

 Welcome to LockedMe.com
```

The following snap shot shows the files created via FileIO



8. Navigating to submenu and choosing option b and delete the file with Id 3

```
|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
B
 Please specify the ID of the file you want to delete
3
File with the id 3 is now deleted

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
```

9. Selecting Option D to navigate to main menu than choose option 1 to display the list of files

From snapshot below we see that only File1 ad File2 are displayed as File3 has been deleted

```
|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
D

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
```

```
|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|

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 Please choose one of the following options:
 1> Display the list of files currently saved in the system
 2> Manage files in the system
 3> Close the application
1
 Your selection is option 1
 In this option you will see all files currently saved in the system
{1=File1, 2=File2}

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|

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 3> Close the application
```

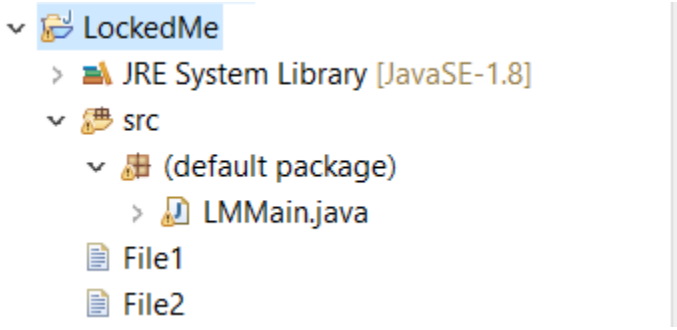

10. Now lets test main and sub menu wrong option selection to see exception handling

First Scenario

```
|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|

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 Please choose one of the following options:
 1> Display the list of files currently saved in the system
 2> Manage files in the system
 3> Close the application
A
The option you entered is not correct, please select an integer option between 1 and 3

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|

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 1> Display the list of files currently saved in the system
 2> Manage files in the system
 3> Close the application
```

Second Scenario

```
|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
B
 Please specify the ID of the file you want to delete
5

 The File ID you specified is not stored in the sytem


|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
```

11 Navigating back to main menu and closing the system

```
|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
 Please choose which manage option you would like to do:
 A> Add a file
 B> Delete a file
 C> Search for a spacific file
 D> Navigate to main screen
D

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|

|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|

 Welcome to LockedMe.com

 This application is developed by Sulaiman Al Ruqaishi from Company Lockers Pvt. Ltd

 This application helps clients to manage their files

 Please choose one of the following options:
 1> Display the list of files currently saved in the system
 2> Manage files in the system
 3> Close the application
3
 Your selection is option 3
 The system will now close, Thank you for using lockedMe.com
|>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<|
```

Algorithms and flowcharts of the application

This section details out the algorithms used in the project and as well the application flow chart. In terms of the key algorithms used they are the following:

- The use of Maps to store user specified file Id's and file names
- The use of **If and else if** statements to navigate through main menu and sub menu options
- For search purposes, the use of **IsFileThere** a Boolean variable that uses fileSet.Contains(**UserSpecifiedFile**); to specify if file is stored in the system or not.

Figure 7 below illustrates the System flow chart of Project lockedMe.com:

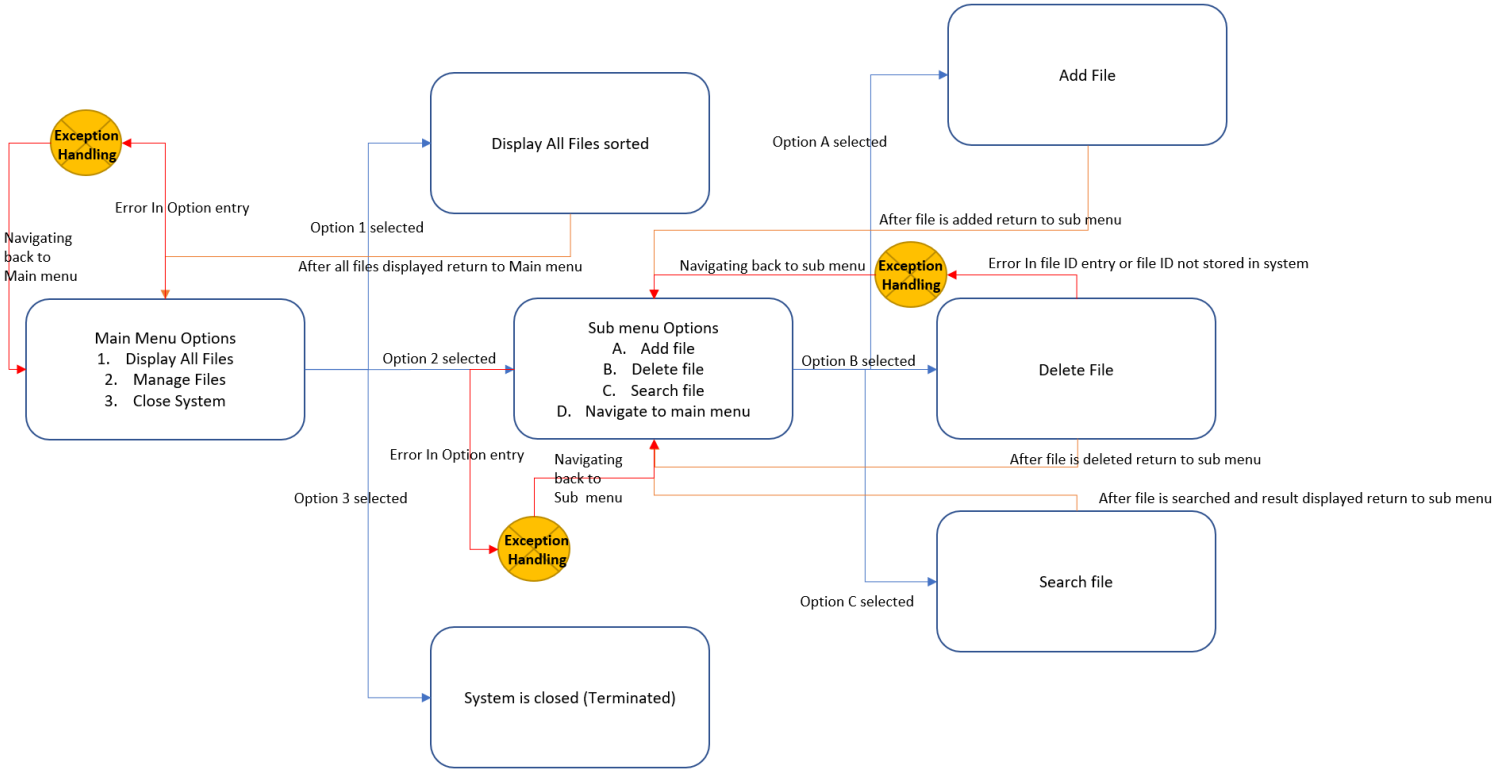

Figure 8 Project LockedMe.com System Flow Chart

Core concepts used in the project

The following Java Libraries were imported for the project:

```
java.io.BufferedReader;
java.io.FileOutputStream;
java.io.IOException;
java.io.InputStreamReader;
java.util.Map;
java.util.Map.Entry;
java.util.Set;
java.util.TreeMap;
java.io.File;
```

Key concepts used in the project included the following:

- Reading, Writing, and Creating Files
- Storing Java pairs of keys and values using Maps
- The use of Map.entry to iterate over pairs of keys and values
- The use of TreeMap for ordering based on keys
- The use of Exception handling to manage the errors in user entry

Links to the GitHub repository to verify the project completion

The following link is to the LMMain.java file which holds the project:

https://github.com/Alruqaishi/LockedMe.git

Conclusion on enhancing the application and defining the USPs (Unique Selling Points)

Following are set of recommendations to further enhance the system

- System to set security access for different groups of users for the file
- System to keep log of dates and times files were created / deleted
- System to keep log of users access and type of options / transactions used in the system
- System to generate reports / logs related to above
- System to keep records of file types example PowerPoint, word, etc.

Full Stack Java Developer Course

Phase-1: Implement OOPS using JAVA with Data Structures and Beyond

Project: LockMe.com

Completed by: Sulaiman Al Ruqaishi
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