Implement OOPS using JAVA with Data Structures and Beyond Project 1

Virtual Key for Your Repository

Report content:

- Basic Info
- Specification document - Product's capabilities, appearance, and user interactions
- Project objective
- Sprite planning
- Java concepts in use
- App workflow chart
- App sample snips
- Algorithms with comments
- Unique selling points
- Conclusion

Basic Info

App name: Virtual Key for Your Repository

Developer: Drazen Drinic

GitHub: https://github.com/Drazen-BBG/SimpliLearn_OOPS_Project

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

This app is menu-based application which is able to navigate through the directories showing their content, user can sort or search the directory content. To ma it more interesting user is able to see file or folder details and to create and delete files from the directory.

Taking in consideration that this is a console app I can tell its appearance is above expected since menus and other messages to the user are nicely presented through boxed content which was accomplished using developer made methods.

User interaction is console based and menu driven as previously said and the interaction is done through app messages displayed in the console where the user can interact using keyboard to choose provided options or past copied paths.

Project Objectives:

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.

Background of the problem 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.

The 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.

You must use 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.

Following requirements should be met:

- 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);

Sprint Planning

There are five sprites each taking 3-7 days. The goal here is to have a working console app the whole time with limited functionality until we achieve full functionality.

Sprint 1:

The goal of the 1st sprint is to create an IntelliJ IDEA project, set up a git repository and push it to GitHub. The functionality goal is to have a working app the whole time and a very nice presentation in the console. We will create welcome message & goodbye message using developer made methods for nice and even console presentation. We will create numerus variables to store all the info needed for a proper app presentation and functionality. Few of those variables are going to hold app name, developer name, app path etc.

In the second part of the 1st sprite we will create a method to display main menu, a method to get user input, we will need two variables to store the absolute app path and another one to be able to store current app path for the purpose of navigating through the directories. We need those and their getters and setters not only to go into directories or go back to parent directories, we need them also to manage file explorer presentation, sorting, searching, file creation and deletion and for many more options we want to implement into our app.

In the third part of the 1st sprite we will further develop the user input method to be able to handle incorrect user input in terms of data type and menu range.

Sprite 2:

In the 2nd sprite we want to add functionality to our main menu and we will start slowly firstly creating new methods to display developer info, delay method to have even better presentation, and then we will go forward and make organized execution of the app organizing the method calls in a start app method, we will also create a method to terminate the app.

In the second part of our 2nd sprite we will test newly created main menu and user input method, making sure all the methods work properly and checking if our user input can handle incorrect user input.

Sprint 3:

In the 3rd spring we will focus on the file explorer and its file details related methods. We need to be able to list all the files and folder in the directory path, need to display general options for our file explorer and most importantly need to be able to list all the files dynamically and offer a dynamic menu to be able to see file details or folder details from the file explorer.

In the second part of the 3rd sprint we will develop go into directory method to be able to enter directories and go to parent directory method to be able to go to a parent directory. By now we will have nice main menu and file explorer where we can go through folders and see details for selected files or folders. Now when we can navigate through the directories we will create methods for creating and deleting files. We will test the app and finish for this sprite.

Sprite 4:

Our app needs to keep developing and in the 4th sprite we will add the remaining needed functionality and that is sorting and searching. First, we will refactor the code and do a nice comment markup of the whole code before we go for implementation of the remaining functionally.

In the second part of our 4th sprite we will develop sort ascending and sort descending methods which are going to sort the files and then present them using the file explorer method. Those changes are going to influence the whole code and many changes in the code will need to be done to be able to join the soring functionality with the all existing functionality implemented in the file explorer.

In the third part of the 4th sprint we will implement the search directory method to give the user an option to search for a file or folder in the file explorer after this is done app needs to be tested and documented.

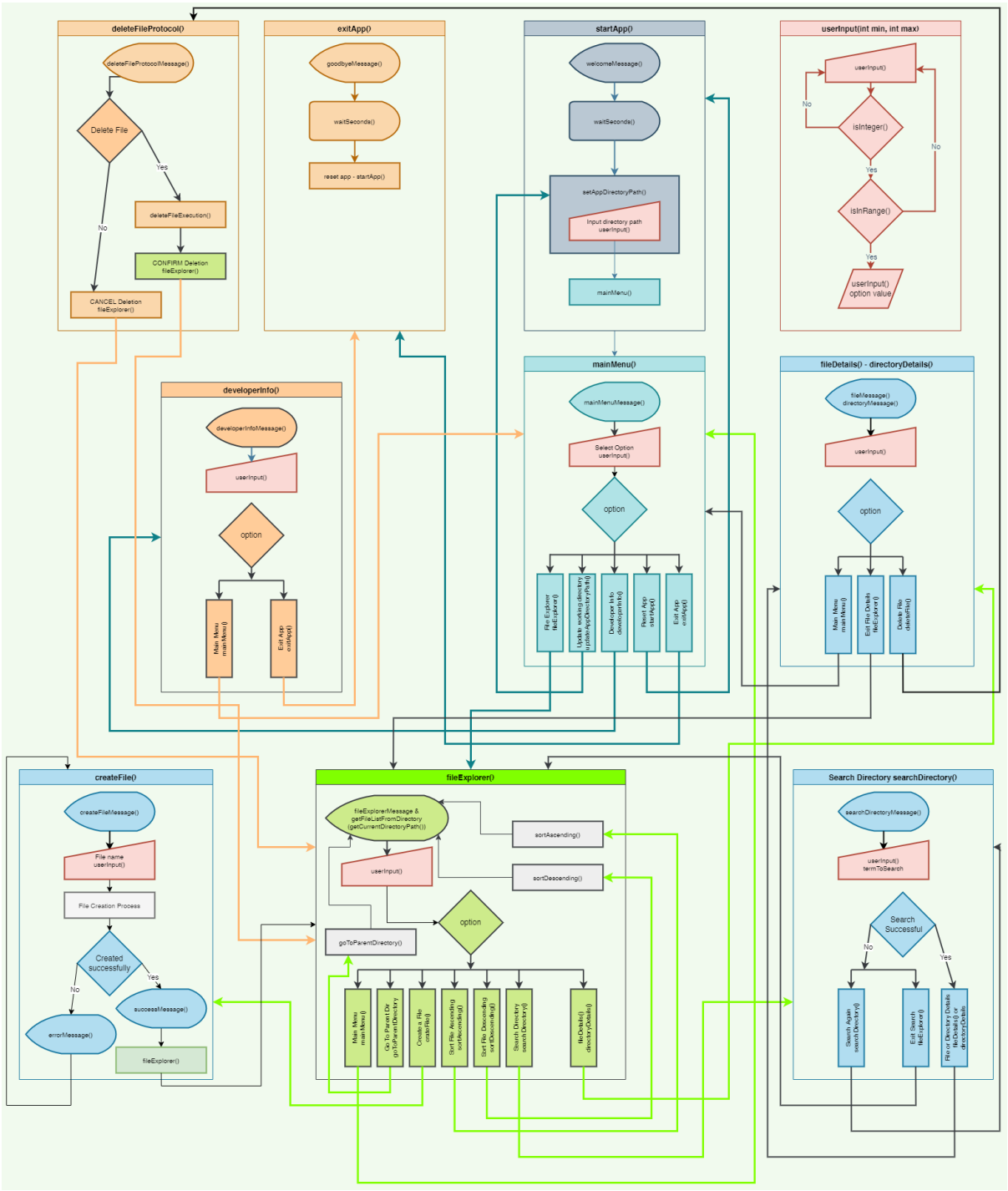
Sprite 5:

In our 5th and last sprite we will test the app do necessary changes and refactoring to make the code shorter where it can be done easily. After all the testing is done we will add more comments in the code and then we will make the necessary documentation for this app to be able to make a nice report, app workflow chart and algorithm details.

Java concepts in use

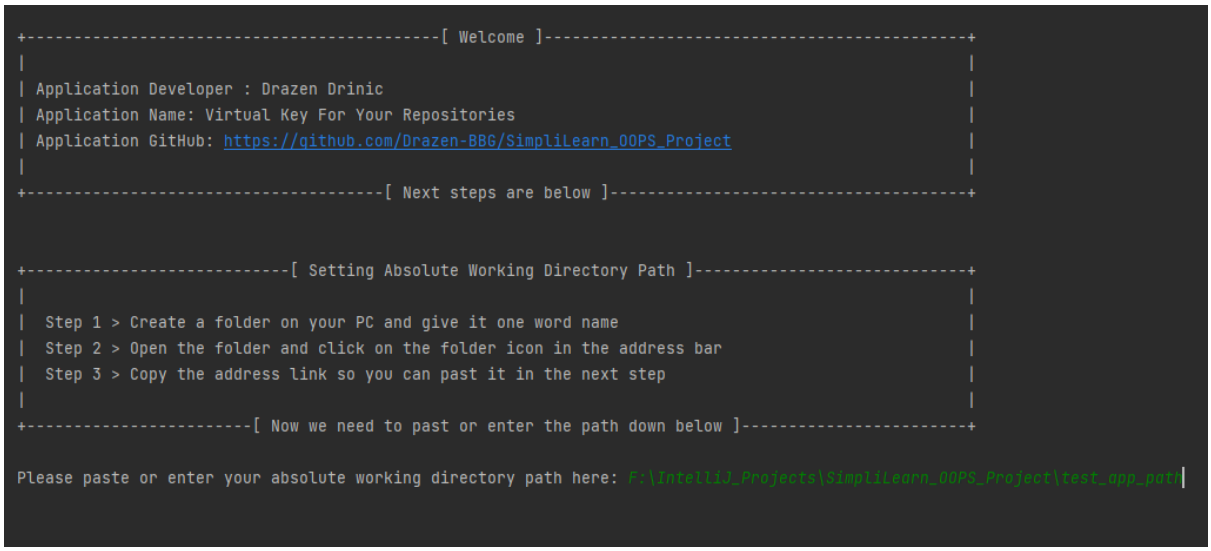
- Scanner – User input
- Regular Expression and Paths
- File handling
- Collections
- Sorting & Searching
- Exceptions

App WorkFlow Chart

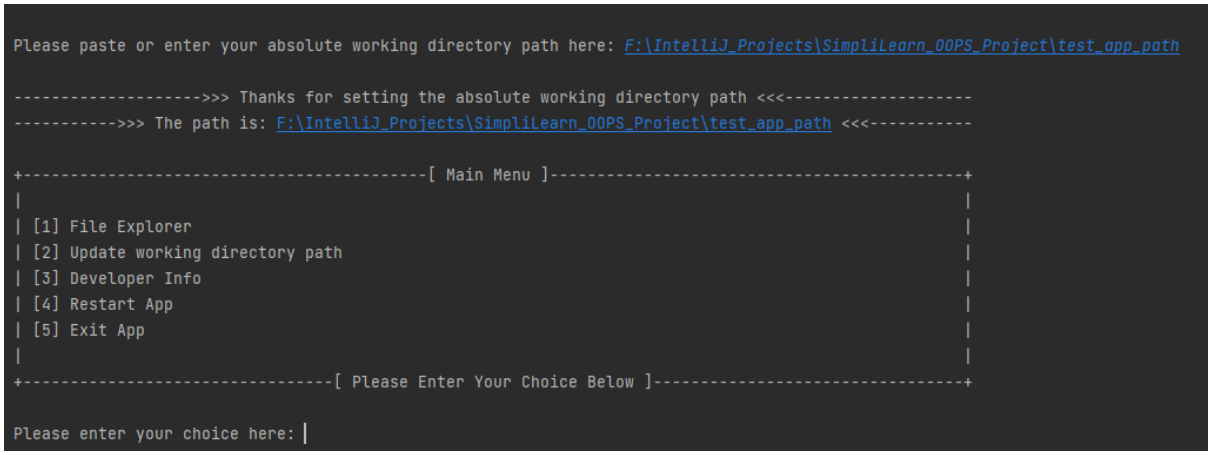


App sample snips

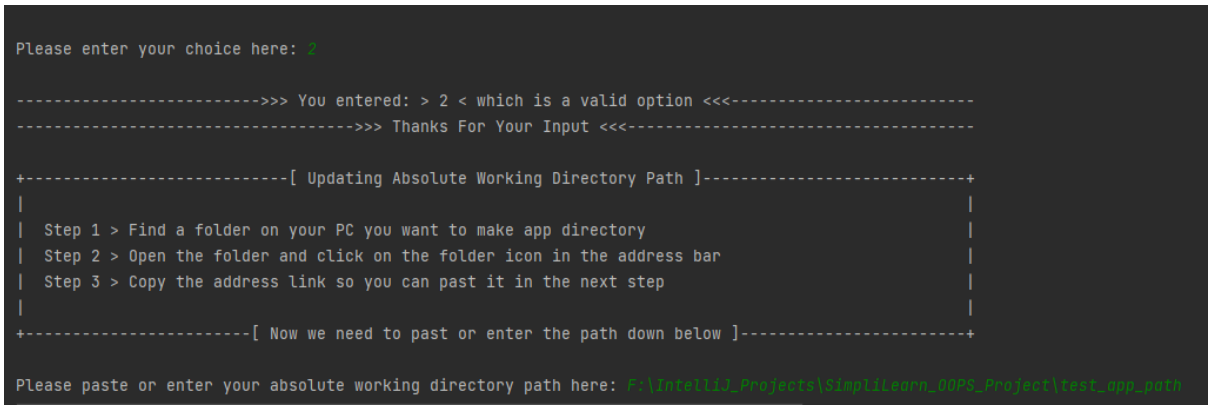
Welcome and Setting Absolute Working Directory path



Main menu

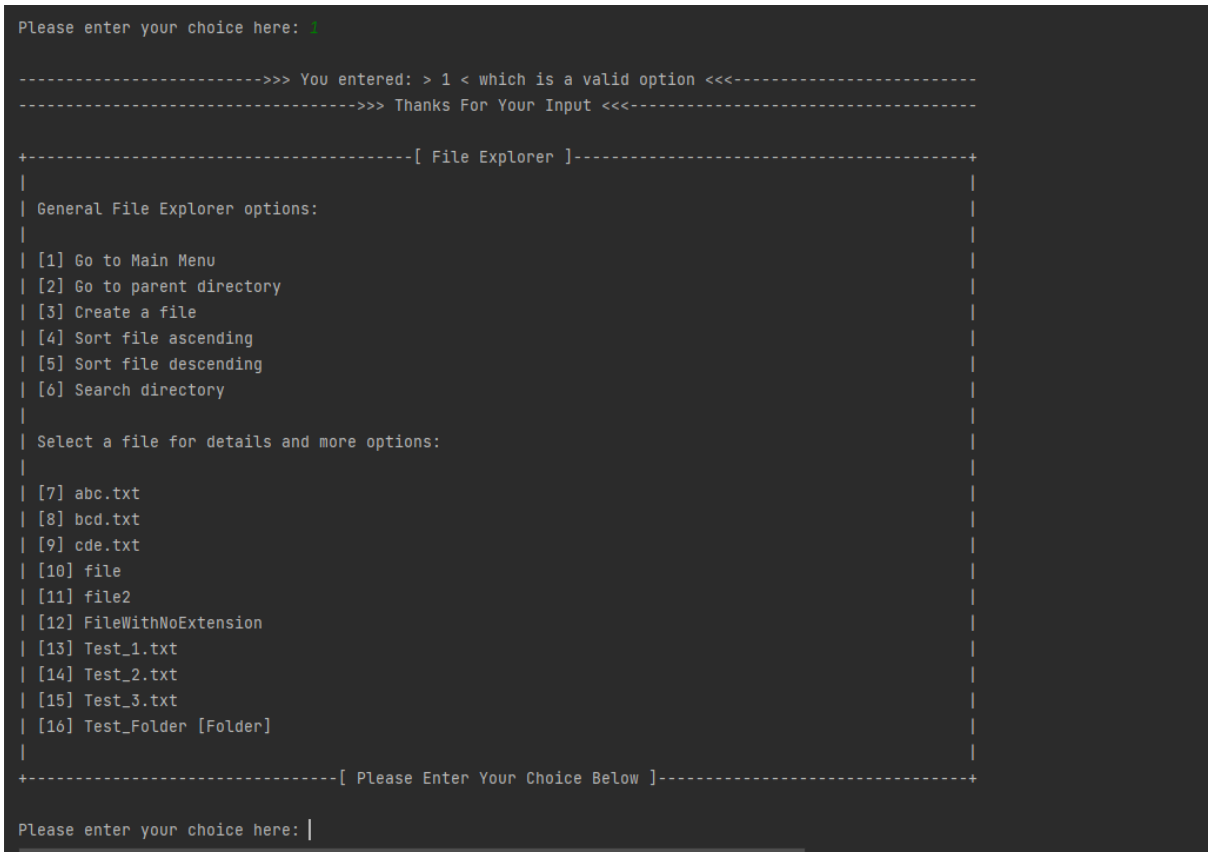


Updating Absolute Working Directory

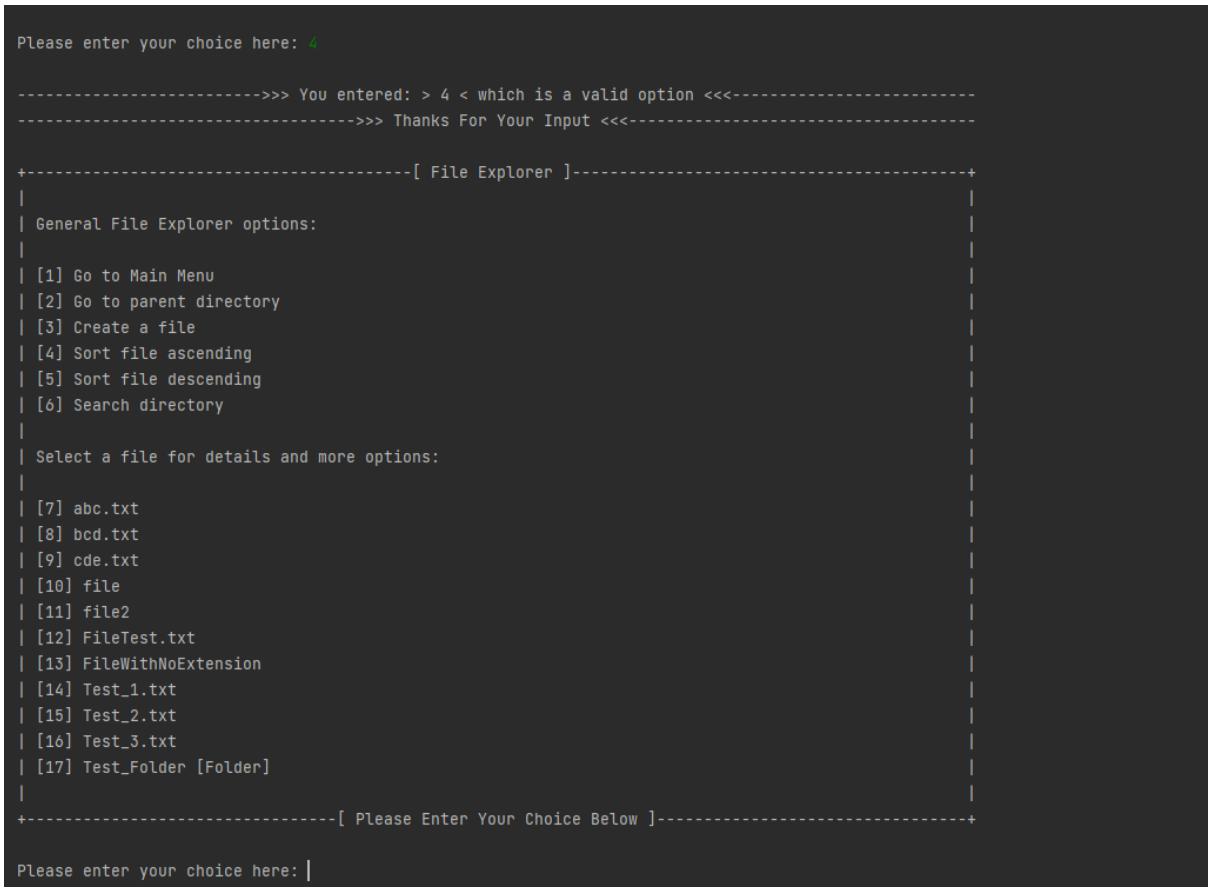


Developer Info

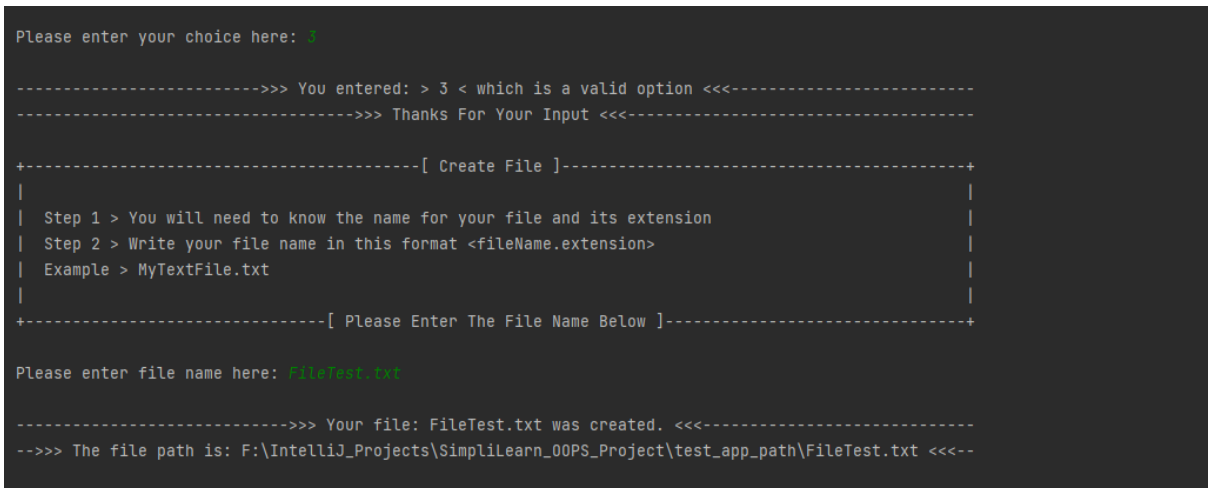
File Explorer



Sort Descending



Create a File



File Details

```
Please enter your choice here: 7

-------------------------->>> You entered: > 7 < which is a valid option <<<--------------------------
------------------------------------>>> Thanks For Your Input <<<------------------------------------

+----------------------------------------[ File details ]----------------------------------------+
|                                                                                                 |
| File name: abc.txt                                                                              |
| File path: F:\IntelliJ_Projects\SimpliLearn_OOPS_Project\test_app_path\abc.txt                  |
| File size: 15.82905 kilobytes                                                                   |
|                                                                                                 |
| [1] Go to Main Menu                                                                             |
| [2] Exit file details                                                                           |
| [3] Delete file                                                                                 |
|                                                                                                 |
+--------------------------------[ Please Enter Your Choice Below ]--------------------------------+

Please enter your choice here:
```

Delete File

```
Please enter your choice here: 3

-------------------------->>> You entered: > 3 < which is a valid option <<<--------------------------
------------------------------------>>> Thanks For Your Input <<<------------------------------------

+-----------------------------------[ Confirm you want to delete ]-----------------------------------+
|                                                                                                 |
| File name: file2                                                                                |
| File path: F:\IntelliJ_Projects\SimpliLearn_OOPS_Project\test_app_path\file2                    |
| File size: 0.00000                                                                              |
|                                                                                                 |
| [1] To CONFIRM deletion                                                                         |
| [2] To CANCEL deletion                                                                          |
|                                                                                                 |
+--------------------------------[ Please Enter Your Choice Below ]--------------------------------+

Please enter your choice here: 1

-------------------------->>> You entered: > 1 < which is a valid option <<<--------------------------
------------------------------------>>> Thanks For Your Input <<<------------------------------------

--------------------------------->>> Your file: file2 was deleted. <<<---------------------------------
```

Directory Details

```
Please enter your choice here: 17

-------------------------->>> You entered: > 17 < which is a valid option <<<--------------------------
------------------------------------>>> Thanks For Your Input <<<------------------------------------

+-------------------------------------[ Directory details ]-------------------------------------+
|                                                                                                 |
| Directory name: Test_Folder                                                                     |
| Directory path: F:\IntelliJ_Projects\SimpliLearn_OOPS_Project\test_app_path\Test_Folder         |
| Directory size: 185.07510 kilobytes                                                             |
|                                                                                                 |
| [1] Go to Main Menu                                                                             |
| [2] Exit directory details                                                                      |
| [3] Enter directory                                                                             |
|                                                                                                 |
+--------------------------------[ Please Enter Your Choice Below ]--------------------------------+

Please enter your choice here:
```

Goodbye


Please enter your choice here: 5
------------------------>>> You entered: > 5 < which is a valid option <<<------------------------
------------------------------------>>> Thanks For Your Input <<<------------------------------------
+---[Goodbye]---+
| |
| Thanks for trying my app!!! |
| See you next time!!! |
| |
+--***--+
Process finished with exit code 0

Algorithms with comments

```
package com.lockersPvtLtd.application;


import java.io.File;

import java.io.IOException;

import java.nio.file.Files;

import java.nio.file.Path;

import java.nio.file.Paths;

import java.util.*;

import java.util.regex.Pattern;

import java.util.Arrays;


public class VirtualKeyForYourRepositories {



   // Path variables

   static String absoluteAppDirectoryPath; // It is the path provided by the user and can only be changed using setAppDirectoryPath() or updateAppDirectoryPath()

   static String currentDirectoryPath; // It is the path which changes as we navigate through fileExplorer by entering folders or by going to a parent folder




   // Other global variables

   static String appName = "Virtual Key For Your Repositories";

   static int consoleBoxWidth = 100; //It is the width of the console text box, suggested minimum is 90

   static String gitHubAppLink = "https://github.com/Drazen-BBG/SimpliLearn_OOPS_Project";

   static String developerName = "Drazen Drinic";

   static String developerLinkedin = "https://www.linkedin.com/in/drazendrinic/";

   // numberingInFileExplorer is reset to 0 and then used to number each option for the user
```

```
    static int numberingInFileExplorer = 0;
    // loopIterations is numbering inside loops to be able to calculate and make a difference between General options and file related options
    static int loopIterations = 0;




    // Getters and Setters
    public static String getAbsoluteAppDirectoryPath() {
        return absoluteAppDirectoryPath;
    }
    public static void setAbsoluteAppDirectoryPath(String absoluteAppDirectoryPath) {
        VirtualKeyForYourRepositories.absoluteAppDirectoryPath = absoluteAppDirectoryPath;
    }
    public static String getCurrentDirectoryPath() {
        return currentDirectoryPath;
    }
    public static void setCurrentDirectoryPath(String currentDirectoryPath) {
        VirtualKeyForYourRepositories.currentDirectoryPath = currentDirectoryPath;
    }
    public static String getAppName() {
        return appName;
    }
    public static void setAppName(String appName) {
        VirtualKeyForYourRepositories.appName = appName;
    }
    public static int getConsoleBoxWidth() {
        return consoleBoxWidth;
    }
    public static void setConsoleBoxWidth(int consoleBoxWidth) {
        VirtualKeyForYourRepositories.consoleBoxWidth = consoleBoxWidth;
```

```
}
public static String getGitHubAppLink() {
   return gitHubAppLink;
}
public static void setGitHubAppLink(String gitHubAppLink) {
   VirtualKeyForYourRepositories.gitHubAppLink = gitHubAppLink;
}
public static String getDeveloperName() {
   return developerName;
}
public static void setDeveloperName(String developerName) {
   VirtualKeyForYourRepositories.developerName = developerName;
}
public static String getDeveloperLinkedin() {
   return developerLinkedin;
}
public static void setDeveloperLinkedin(String developerLinkedin) {
   VirtualKeyForYourRepositories.developerLinkedin = developerLinkedin;
}
public static int getNumberingInFileExplorer() {
   return numberingInFileExplorer;
}
public static void setNumberingInFileExplorer(int numberingInFileExplorer) {
   VirtualKeyForYourRepositories.numberingInFileExplorer = numberingInFileExplorer;
}
public static int getLoopIterations() {
   return loopIterations;
}
public static void setLoopIterations(int loopIterations) {
   VirtualKeyForYourRepositories.loopIterations = loopIterations;
}
```

```
// main()
public static void main(String[] args) {
    startApp();
}



// startApp()
private static void startApp(){
    //Clear the console code, having issues to make it work in IntelliJ IDEA
    System.out.print("\033[H\033[2J");
    System.out.flush();

    //Running the app
    welcomeMessage();
    waitSeconds(2);
    setAppDirectoryPath();
    mainMenu();

}
// waitSeconds() delays execution of the code in seconds entered as parameter.
private static void waitSeconds(int waitSeconds){

    int milliSeconds = 1000 * waitSeconds;
    try {
        Thread.sleep( milliSeconds);
    } catch (InterruptedException ie) {
```

```
            Thread.currentThread().interrupt();
        }
    }
    // exitApp()
    private static void exitApp(){
        goodbyeMessage();
        waitSeconds(3);
        System.exit(0);
    }



    // lineBuilder methods help us to build lines in the console, for better presentation.
    private static String lineBuilderCenterAligned(int lineLength, String mainString, char
firstAndLastPlaceHolder, char mainPlaceHolder){
        String line = "";
        StringBuilder prefix = new StringBuilder();
        StringBuilder postfix = new StringBuilder();

        int prefixLength = (lineLength - mainString.length())/2;
        int postfixLength = lineLength - mainString.length() - prefixLength;

        for (int i = 0; i < prefixLength; i++){
            prefix.append(mainPlaceHolder);
        }
        prefix.insert(0, firstAndLastPlaceHolder);

        for (int i = 0; i < postfixLength; i++){
            postfix.append(mainPlaceHolder);
        }
```

```
        postfix.append(firstAndLastPlaceHolder);


        line = prefix + mainString + postfix;



        return line;
    }
    private static String lineBuilderLeftAligned(int lineLength, String mainString, char
firstAndLastPlaceHolder, char mainPlaceHolder){
        String line;
        StringBuilder prefix = new StringBuilder();
        StringBuilder postfix = new StringBuilder();

        int prefixLength = 1;
        int postfixLength = lineLength - mainString.length() - prefixLength;

        for (int i = 0; i < prefixLength; i++){
            prefix.append(mainPlaceHolder);
        }
        prefix.insert(0, firstAndLastPlaceHolder);

        for (int i = 0; i < postfixLength; i++){
            postfix.append(mainPlaceHolder);
        }
        postfix.append(firstAndLastPlaceHolder);

        line = prefix + mainString + postfix;



        return line;
    }
```

```
// welcomeMessage() is the first method to call, it greats the user.
private static void welcomeMessage(){
   String firstLine = "[ Welcome ]";
   String lastLine = "[ Next steps are below ]";

   List<String> mainMessageContentList = new ArrayList<>();
   mainMessageContentList.add("Application Developer : " + getDeveloperName());
   mainMessageContentList.add("Application Name: " + getAppName());
   mainMessageContentList.add("Application GitHub: " + getGitHubAppLink());

   buildMessageContent(firstLine, mainMessageContentList, lastLine, false);
}

//goodbyeMessage() is called when we want to exit the program
private static void goodbyeMessage(){
   String firstLine = "[ Goodbye ]";
   String lastLine = "***";

   List<String> mainMessageContentList = new ArrayList<>();
   mainMessageContentList.add("Thanks for trying my app!!!");
   mainMessageContentList.add("See you next time!!!");

   buildMessageContent(firstLine, mainMessageContentList, lastLine, true);
}


private static void developerInfoMessage(){
```

```
    String firstLine = "[ Developer Info ]";
    String userInputLine = "Please enter your choice here: ";
    String lastLine = "[ Next steps are below ]";

    List<String> mainMessageContentList = new ArrayList<>();
    mainMessageContentList.add("Application Developer : " + getDeveloperName());
    mainMessageContentList.add("LinkedIn: " + getDeveloperLinkedin());
    mainMessageContentList.add("Application GitHub: " + getGitHubAppLink());
    mainMessageContentList.add("");
    mainMessageContentList.add("[1] Main Menu");
    mainMessageContentList.add("[2] Exit App");

    buildMessageContent(firstLine, mainMessageContentList, lastLine, false);
    buildUserInputLine(userInputLine);
}
// developerInfo() displays developer info
private static void developerInfo(){

    developerInfoMessage();

    int min = 1;
    int max = 2;
    int option;
    //Getting validated option from user
    option = userInput(min, max);

    switch (option){
        case 1:
            mainMenu();
            break;
        case 2:
```

```
            exitApp();
            break;
        }
    }

    // setAppDirectoryPathMessage() is a method used to separate message from functionality in the setAppDirectoryPath()
    private static void setAppDirectoryPathMessage(){
        String firstLine = "[ Setting Absolute Working Directory Path ]";
        String userInputLine = "Please paste or enter your absolute working directory path here: ";
        String lastLine = "[ Now we need to past or enter the path down below ]";

        List<String> mainMessageContentList = new ArrayList<>();
        mainMessageContentList.add(" Step 1 > Create a directory on your PC and give it no-space name, e.g. MyDirectory");
        mainMessageContentList.add(" Step 2 > Make sure your directory path has no spaces in it");
        mainMessageContentList.add(" Step 3 > Open the directory and click on the directory icon in the address bar");
        mainMessageContentList.add(" Step 4 > Copy the address link so you can past it in the next step");

        buildMessageContent(firstLine, mainMessageContentList, lastLine, false);
        buildUserInputLine(userInputLine);
    }
    // setAppDirectoryPath() sets the path for the app folder at the beginning of the program
    private static void setAppDirectoryPath() {

        setAppDirectoryPathMessage();
```

```
        Scanner scanner = new Scanner(System.in);
        String tempPath =scanner.next();
        //scanner.close(); This was causing issues

        System.out.println("");

        if(Pattern.matches("((\\/)+|(\\\\)+)", tempPath)) {
            System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Seams your input was invalid <<<", '+', '-'));
            System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Check the instructions below and try again <<<", '+', '-'));
            setAppDirectoryPath();
        }else {
            if (new File(tempPath).exists() && new File(tempPath).isDirectory()){
                setCurrentDirectoryPath(tempPath);
                setAbsoluteAppDirectoryPath(tempPath);
                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Thanks for setting the absolute working directory path <<<", '-', '-'));
                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> The path is: " + tempPath + " <<<", '-', '-'));
            }else{
                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Seams your input was invalid <<<", '-', '-'));
                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Check the instructions below and try again <<<", '-', '-'));
                setAppDirectoryPath();
            }
        }
    }
    // updateAppDirectoryPathMessage() is a method used to separate message from functionality in the updateAppDirectoryPath()
    private static void updateAppDirectoryPathMessage(){
        String firstLine = "[ Updating Absolute Working Directory Path ]";
```

```
        String userInputLine = "Please paste or enter your absolute working directory path here: ";

        String lastLine = "[ Now we need to past or enter the path down below ]";


        List<String> mainMessageContentList = new ArrayList<>();

        mainMessageContentList.add(" Step 1 > Find a folder on your PC you want to make app
directory");

        mainMessageContentList.add(" Step 2 > Open the folder and click on the folder icon in the
address bar ");

        mainMessageContentList.add(" Step 3 > Copy the address link so you can past it in the next
step");


        buildMessageContent(firstLine, mainMessageContentList, lastLine, false);

        buildUserInputLine(userInputLine);


    }

    // updateAppDirectoryPath() is a method that gives user an option to change the
absoluteAppDirectoryPath, and therefore it also updates the currentDirectoryPath

    private static void updateAppDirectoryPath() {


        updateAppDirectoryPathMessage();


        Scanner scanner = new Scanner(System.in);

        String tempPath =scanner.next();

        //scanner.close(); This was causing issues


        System.out.println("");


        if(Pattern.matches("((\\/)+|(\\\\)+)", tempPath)) {

            System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Seams your input
was invalid <<<", '+', '-'));

            System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Check the
instructions below and try again <<<", '+', '-'));

            setAppDirectoryPath();
```

```
        }else {
            if (new File(tempPath).exists() && new File(tempPath).isDirectory()){
                setCurrentDirectoryPath(tempPath);
                setAbsoluteAppDirectoryPath(tempPath);
                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Thanks for updating the absolute working directory path <<<", '-', '-'));
                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> The path is: " + tempPath + " <<<", '-', '-'));
            }else{
                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Seams your input was invalid <<<", '-', '-'));
                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Check the instructions below and try again <<<", '-', '-'));
                setAppDirectoryPath();
            }
        }
    }

    // User input methods to take input from user and to validate the input
    // For this to work every other method calling those methods have to have min and max values
    // userInput() is called in every other method when we need a user input, other related methods below are helper methods to make it all work
    private static int userInput(int min, int max){

        Scanner scanner = new Scanner(System.in);
        String userInputString = scanner.next();

        int userInputInteger;
        int userInputIntegerNextTry;
```

```
    if (isInteger(userInputString)){
        userInputInteger = Integer.parseInt(userInputString);
        if (isInRange(userInputInteger, min, max)){
            // Message for valid input
            System.out.println("");
            System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> You entered: > "
+ userInputInteger + " < which is a valid option <<<", '-', '-'));
            System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Thanks For Your
Input <<<", '-', '-'));
            //System.out.println("");
            return userInputInteger;
        }else{
            // Wrong input NOT IN RANGE
            System.out.println("");
            System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> You entered: > "
+ userInputInteger + " < which is in not in range between " + min+"-"+max + " <<<", '-', '-'));
            System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Please try again
<<<", '-', '-'));
            System.out.println("");
            System.out.print("Please enter your choice here: ");

            // It would be great to print the appropriate menu again
            userInputIntegerNextTry = userInput(min, max);
            return userInputIntegerNextTry;
        }
    }else{
        // Wrong input NOT AN INTEGER
        System.out.println("");
        System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> You entered: > " +
userInputString + " < which is NOT a WHOLE number <<<", '-', '-'));
        System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Please try again
<<<", '-', '-'));
        System.out.println("");
```

```
        System.out.print("Please enter your choice here: ");


        userInputIntegerNextTry = userInput(min, max);
        return userInputIntegerNextTry;
    }
}

// isInteger() checks if the user input is integer
private static boolean isInteger(String stringToCheck){
    if (stringToCheck == null){
        return false;
    }
    try {
        int integerNumber = Integer.parseInt(stringToCheck);
    }catch (NumberFormatException nfe){
        return false;
    }
    return true;
}
// isInRange() method checks if the user input is in range of available options
private static boolean isInRange(int numberToTest, int min, int max){
    if (numberToTest >= min && numberToTest <= max){
        return true;
    }else{
        return false;
    }
}




// Message builder methods
```

```
    // buildFirstLine()
    private static void buildFirstLine(String firstLine){
        System.out.println();
        System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), firstLine, '+', '-'));
        System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), "", '|', ' '));
    }
    // buildMessageContent()
    private static void buildMessageContent(List mainMessageContentList, Boolean isCentered){
        if (isCentered){
            for (int i = 0; i<mainMessageContentList.size(); i++){
                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(),
mainMessageContentList.get(i).toString(), '|', ' '));
            }
        }else {
            for (int i = 0; i<mainMessageContentList.size(); i++){
                System.out.println(lineBuilderLeftAligned(getConsoleBoxWidth(),
mainMessageContentList.get(i).toString(), '|', ' '));
            }
        }
    }
    // buildMessageContent() with buildFirstLine() and buildLastLine() included
    private static void buildMessageContent(String firstLine, List mainMessageContentList, String
lastLine, Boolean isCentered){
        buildFirstLine(firstLine);

        if (isCentered){
            for (int i = 0; i<mainMessageContentList.size(); i++){
                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(),
mainMessageContentList.get(i).toString(), '|', ' '));
            }
        }else {
```

```
        for (int i = 0; i<mainMessageContentList.size(); i++){
            System.out.println(lineBuilderLeftAligned(getConsoleBoxWidth(),
mainMessageContentList.get(i).toString(), '|', ' '));
        }
      }

      buildLastLine(lastLine);
   }
   // buildLastLine()
   private static void buildLastLine(String lastLine){
      System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), "", '|', ' '));
      System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), lastLine, '+', '-'));
      System.out.println();
   }
   // buildUserInputLine()
   private static void buildUserInputLine(String userInputLine){
      System.out.print(userInputLine);
   }



   // mainMenuMessage() is a method used to separate message from functionality in the
mainMenu()
   private static void mainMenuMessage(){

      //creating the console look
      String firstLine = "[ Main Menu ]";
      String userInputLine = "Please enter your choice here: ";
      String lastLine = "[ Please Enter Your Choice Below ]";

      List<String> mainMessageContentList = new ArrayList<>();
      mainMessageContentList.add("[1] File Explorer");
```

```
    mainMessageContentList.add("[2] Update working directory path");
    mainMessageContentList.add("[3] Developer Info");
    mainMessageContentList.add("[4] Restart App");
    mainMessageContentList.add("[5] Exit App");


    buildMessageContent(firstLine, mainMessageContentList, lastLine, false);
    buildUserInputLine(userInputLine);

}
// mainMenu() method is the main menu presented to the user
private static void mainMenu(){

    mainMenuMessage();

    // Setting min and max range
    int min = 1;
    int max = 5;
    int option;
    //Getting validated option from user
    option = userInput(min, max);

    switch (option){
        case 1:
            setCurrentDirectoryPath(getAbsoluteAppDirectoryPath());
            fileExplorer(getFileListFromDirectory(getCurrentDirectoryPath()));
            break;
        case 2:
            updateAppDirectoryPath();
            mainMenu();
            break;
```

```
            case 3:
                developerInfo();
                break;
            case 4:
                startApp();
                break;
            case 5:
                exitApp();
                break;
        }
    }



    // fileExplorerMessage() is a method used to separate message from functionality in the fileExplorer()
    private static void fileExplorerMessage(File[] inputFileListToExplore){

        //creating the console look
        String firstLine = "[ File Explorer ]";
        String userInputLine = "Please enter your choice here: ";
        String lastLine = "[ Please Enter Your Choice Below ]";

        List<String> mainMessageContentList = new ArrayList<>();
        mainMessageContentList.add("General File Explorer options:");
        mainMessageContentList.add("");
        mainMessageContentList.add("["+(++numberingInFileExplorer)+"]" + " Go to Main Menu");
        mainMessageContentList.add("["+(++numberingInFileExplorer)+"]" + " Go to parent directory");
        mainMessageContentList.add("["+(++numberingInFileExplorer)+"]" + " Create a file");
        mainMessageContentList.add("["+(++numberingInFileExplorer)+"]" + " Sort file ascending");
```

```
        mainMessageContentList.add("["+(++numberingInFileExplorer)+"]" + " Sort file descending");
        mainMessageContentList.add("["+(++numberingInFileExplorer)+"]" + " Search directory");
        mainMessageContentList.add("");
        mainMessageContentList.add("Select a file for details and more options:");
        mainMessageContentList.add("");

        buildFirstLine(firstLine);
        buildMessageContent(mainMessageContentList, false);

        if (inputFileListToExplore != null && inputFileListToExplore.length > 0){
            for (File file : inputFileListToExplore){
                ++loopIterations;
                // Check if the file is a directory
                if (file.isDirectory()){
                    System.out.println(lineBuilderLeftAligned(getConsoleBoxWidth(),
"["+(++numberingInFileExplorer)+"]" + " " + file.getName() + " [Folder]", '|', ' '));
                }else {
                    System.out.println(lineBuilderLeftAligned(getConsoleBoxWidth(),
"["+(++numberingInFileExplorer)+"]" + " " + file.getName(), '|', ' '));
                }
            }
        }

        buildLastLine(lastLine);
        buildUserInputLine(userInputLine);
    }
    // fileExplorer() presents content of a folder and gives General and file specific options to the user
    private static void fileExplorer(File[] inputFileListToExplore){
        //Restarting the numberingInFileExplorer and loopIterations on each fileExplorer() call
        setNumberingInFileExplorer(0);
        setLoopIterations(0);
```

```
fileExplorerMessage(inputFileListToExplore);

// Setting min and max range
int min = 1;
int max = getNumberingInFileExplorer();
int option;
option = userInput(min, max);

//Switch General menu
switch (option){
   case 1:
      mainMenu();
      break;
   case 2:
      goToParentDirectory();
      break;
   case 3:
      crateFile();
      waitSeconds(2);
      fileExplorer(getFileListFromDirectory(getCurrentDirectoryPath()));
      break;
   case 4:
      fileExplorer(sortAscending(getFileListFromDirectory(getCurrentDirectoryPath())));
      break;
   case 5:
      fileExplorer(sortDescending(getFileListFromDirectory(getCurrentDirectoryPath())));
      break;
   case 6:
      searchDirectory(getFileListFromDirectory(getCurrentDirectoryPath()));
      break;
}
```

```
        //Files and Folders Menu control down below
        if (option>6 && option<=getNumberingInFileExplorer()){
            File fileToProcess = inputFileListToExplore[(option-(getNumberingInFileExplorer()-
getLoopIterations()))-1];
            if (fileToProcess.isDirectory()){
                // If option selected is a folder
                // setCurrentDirectoryPath
                setCurrentDirectoryPath(fileToProcess.getPath());
                directoryDetails(fileToProcess);
            }else {
                // If bot a folder it must be than a file so let's see its details using the fileDetails() method
                fileDetails(fileToProcess);
            }
        }
    }



    // fileDetailsMessage() is a method used to separate message from functionality in the fileDetails()
    private static void fileDetailsMessage(File fileToProcess, double fileSizeInKiloBytes){
        //creating the console look
        String firstLine = "[ File details ]";
        String userInputLine = "Please enter your choice here: ";
        String lastLine = "[ Please Enter Your Choice Below ]";

        List<String> mainMessageContentList = new ArrayList<>();
        mainMessageContentList.add("File name: " + fileToProcess.getName());
        mainMessageContentList.add("File path: " + fileToProcess.getAbsolutePath());

        // Decision-making and conversion of file size
```

```
        if (fileSizeInKiloBytes < 1024){
            mainMessageContentList.add("File size: " + String.format("%.2f", fileSizeInKiloBytes)  + " kilobytes");
        }else if (fileSizeInKiloBytes < 1048576){
            double fileSizeInMB = fileSizeInKiloBytes / 1024;
            mainMessageContentList.add("File size: " + String.format("%.2f", fileSizeInMB)  + " megabyte (MB)");
        }else {
            double fileSizeInGB = (fileSizeInKiloBytes/1024)/1024;
            mainMessageContentList.add("File size: " + String.format("%.2f", fileSizeInGB)  + " gigabyte (GB)");
        }

        mainMessageContentList.add("");
        mainMessageContentList.add("[1]" + " Go to Main Menu");
        mainMessageContentList.add("[2]" + " Exit file details");
        mainMessageContentList.add("[3]" + " Delete file");

        buildMessageContent(firstLine, mainMessageContentList, lastLine, false);
        buildUserInputLine(userInputLine);
    }
    // fileDetails() lists the details of a selected file and offers an option to delete the file
    private static void fileDetails(File fileToProcess){
        Path fileToProcessPath = Paths.get(fileToProcess.getAbsolutePath());
        double fileSize = 0;
        try {
            fileSize = Files.size(fileToProcessPath);
        }catch (IOException e){
            e.printStackTrace();
            //Make a code to try again
        }
        double fileSizeInKiloBytes = fileSize/1024;
```

```
        fileDetailsMessage(fileToProcess, fileSizeInKiloBytes);

        // Setting min and max range
        int min = 1;
        int max = 3;
        int option;
        //Getting validated option from user
        option = userInput(min, max);

        switch (option) {
            case 1:
                setCurrentDirectoryPath(getAbsoluteAppDirectoryPath());
                mainMenu();
                break;
            case 2:
                fileExplorer(getFileListFromDirectory(getCurrentDirectoryPath()));
                break;
            case 3:
                deleteFileProtocol(fileToProcess);
                waitSeconds(2);
                fileExplorer(getFileListFromDirectory(getCurrentDirectoryPath()));
                break;
        }
    }
    // directoryDetailsMessage() is a method used to separate message from functionality in the
directoryDetails()
    private static void directoryDetailsMessage(File fileToProcess, double fileSizeInKiloBytes){
        //creating the console look
        String firstLine = "[ Directory details ]";
        String userInputLine = "Please enter your choice here: ";
```

```
        String lastLine = "[ Please Enter Your Choice Below ]";


        List<String> mainMessageContentList = new ArrayList<>();
        mainMessageContentList.add("Directory name: " + fileToProcess.getName());
        mainMessageContentList.add("Directory path: " + fileToProcess.getAbsolutePath());


        // Decision-making and conversion of directory size
        if (fileSizeInKiloBytes < 1024){
            mainMessageContentList.add("Directory size: " + String.format("%.2f", fileSizeInKiloBytes)  + " kilobytes");
        }else if (fileSizeInKiloBytes < 1048576){
            double fileSizeInMB = fileSizeInKiloBytes / 1024;
            mainMessageContentList.add("Directory size: " + String.format("%.2f", fileSizeInMB)  + " megabyte (MB)");
        }else {
            double fileSizeInGB = (fileSizeInKiloBytes/1024)/1024;
            mainMessageContentList.add("Directory size: " + String.format("%.2f", fileSizeInGB)  + " gigabyte (GB)");
        }


        mainMessageContentList.add("");
        mainMessageContentList.add("[1]" + " Go to Main Menu");
        mainMessageContentList.add("[2]" + " Exit directory details");
        mainMessageContentList.add("[3]" + " Enter directory");


        buildMessageContent(firstLine, mainMessageContentList, lastLine, false);
        buildUserInputLine(userInputLine);
    }
    // directoryDetails() lists the details of a selected directory and offers an option to enter the directory
    private static void directoryDetails(File directoryToProcess){
        double directorySize = 0;
```

```
    directorySize = directorySizeCalculator(directoryToProcess);//***********

    double fileSizeInKiloBytes = directorySize/1024;

    directoryDetailsMessage(directoryToProcess, fileSizeInKiloBytes);

    // Setting min and max range
    int min = 1;
    int max = 3;
    int option;
    //Getting validated option from user
    option = userInput(min, max);

    switch (option) {
        case 1:
            mainMenu();
            break;
        case 2:
            goToParentDirectory();
            break;
        case 3:
            goIntoDirectory();
    }
}


// directorySizeCalculator() calculates the size of all files and including files in sub-folders
private static double directorySizeCalculator(File directoryToProcess) {
    double directorySize = 0;
    File[] filesInDirectory = directoryToProcess.listFiles();
```

```
        int count = filesInDirectory.length;


        for (int i = 0; i < count; i++) {
            if (filesInDirectory[i].isFile()) {
                directorySize += filesInDirectory[i].length();
            }
            else {
                directorySize += directorySizeCalculator(filesInDirectory[i]);
            }
        }
        return directorySize;
    }



    // goToParentDirectory()
    private static void goToParentDirectory(){
        Path currentDirectoryPath = Paths.get(getCurrentDirectoryPath());
        Path parentPath = currentDirectoryPath.getParent();
        setCurrentDirectoryPath(parentPath.toString());
        fileExplorer(getFileListFromDirectory(getCurrentDirectoryPath()));
    }
    // goIntoDirectory()
    private static void goIntoDirectory(){
        //We need to change the currentDirectoryPath before calling this method, since this method is
just calling the fileExplorer
        fileExplorer(getFileListFromDirectory(getCurrentDirectoryPath()));
    }
```

```
    // createFileMessage() is a method used to separate message from functionality in the createFile()
    private static void createFileMessage(){
        //creating the console look
        String firstLine = "[ Create File ]";
        String userInputLine = "Please enter file name here: ";
        String lastLine = "[ Please Enter The File Name Below ]";

        List<String> mainMessageContentList = new ArrayList<>();
        mainMessageContentList.add(" Step 1 > You will need to know the name for your file and its extension");
        mainMessageContentList.add(" Step 2 > Write your file name in this format <fileName.extension>");
        mainMessageContentList.add(" Example > MyTextFile.txt");

        buildMessageContent(firstLine, mainMessageContentList, lastLine, false);
        buildUserInputLine(userInputLine);
    }
    // createFile() creates a new file in the folder we were seeing using fileExplorer()
    private static void crateFile(){

        createFileMessage();

        //User input
        Scanner scanner = new Scanner(System.in);
        String fileName =scanner.next();

        try {
            File file = new File(getCurrentDirectoryPath(), fileName);
            if(!file.exists()) {
                if(file.createNewFile()) {
```

```
                System.out.println();

                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Your file: " +
file.getName() + " was created. <<<", '-', '-'));

                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> The file path is:
" + file.getAbsolutePath() + " <<<", '-', '-'));

                waitSeconds(2);

                fileExplorer(getFileListFromDirectory(getCurrentDirectoryPath()));

            }else {

                //If you can't create file

                System.out.println();

                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Something
went wrong!!! The file was not created. <<<", '-', '-'));

                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Please try again
<<<", '-', '-'));

                crateFile();

            }

        }else {

            //if already exists

            System.out.println();

            System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> File with this
name already exists. <<<", '-', '-'));

            System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Please try again
with a different name <<<", '-', '-'));

            crateFile();

        }

    }

    catch (IOException e){

        e.printStackTrace();

        crateFile();

    }

  }

  // deleteFileProtocolMessage() is a method used to separate message from functionality in the
deleteFileProtocol()
```

```
    private static void deleteFileProtocolMessage(File fileToProcess, double fileSizeInKiloBytes){
        String firstLine = "[ Confirm you want to delete ]";
        String userInputLine = "Please enter your choice here: ";
        String lastLine = "[ Please Enter Your Choice Below ]";

        List<String> mainMessageContentList = new ArrayList<>();
        mainMessageContentList.add("File name: " + fileToProcess.getName());
        mainMessageContentList.add("File path: " + fileToProcess.getAbsolutePath());
        mainMessageContentList.add("File size: " + String.format("%.5f", fileSizeInKiloBytes));
        mainMessageContentList.add("");
        mainMessageContentList.add("[1] To CONFIRM deletion");
        mainMessageContentList.add("[2] To CANCEL deletion");

        buildMessageContent(firstLine, mainMessageContentList, lastLine, false);
        buildUserInputLine(userInputLine);
    }

    // deleteFileProtocol() organizes the whole thing about deleting the file using
deleteFileProtocolMessage() and deleteFileExecution()
    private static void deleteFileProtocol(File fileToProcess){
        Path fileToProcessPath = Paths.get(fileToProcess.getAbsolutePath());
        double fileSize = 0;
        try {
            fileSize = Files.size(fileToProcessPath);
        }catch (IOException e){
            e.printStackTrace();
            //Make a code to try again
        }
        double fileSizeInKiloBytes = fileSize/2024;

        deleteFileProtocolMessage(fileToProcess, fileSizeInKiloBytes);
```

```
        // Setting min and max range
        int min = 1;
        int max = 2;
        int option;

        //Getting validated option from user
        option = userInput(min, max);

        switch (option) {
            case 1:
                deleteFileExecution(fileToProcess);
                break;
            case 2:
                fileDetails(fileToProcess);
        }
    }

    // deleteFileExecution() deletes the actual file the
    private static void deleteFileExecution(File fileToProcess){
        File fileToDelete = new File(fileToProcess.getAbsolutePath());
        if (fileToDelete.delete()){
            System.out.println();
            System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Your file: " +
fileToProcess.getName() + " was deleted. <<<", '-', '-'));
        }else {
            System.out.println();
            System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Your file: " +
fileToProcess.getName() + " was NOT created. <<<", '-', '-'));
        }
    }
```

```
    // getFileListFromFolder lists files and folders from the currentDirectoryPath and returns an array of Files
    private static File[] getFileListFromDirectory(String pathToFolder){
        File directoryPath = new File(pathToFolder);
        File filesList[] = directoryPath.listFiles();
        return filesList;
    }
    // sortAscending() sorts files it gets from getFileListFromFolder() to ascending order
    private static File[] sortAscending(File[] fileListToSort){
        Arrays.sort(fileListToSort);
        return fileListToSort;
    }
    // sortDescending() sorts files it gets from getFileListFromFolder() to descending order
    private static File[] sortDescending(File[] fileListToSort){

        Arrays.sort(fileListToSort, Collections.reverseOrder());
        return fileListToSort;
    }

    // searchFolderMessage() is a method used to separate message from functionality in the searchFolder
    private static void searchDirectoryMessage(){
        String firstLine = "[ Search Folder ]";
        String userInputLine = "Please enter the term to search: ";
        String lastLine = "[ Please Enter The Search Term Below ]";

        List<String> mainMessageContentList = new ArrayList<>();
        mainMessageContentList.add("Rule #1 This search will find only exact match for your search");
        mainMessageContentList.add("Rule #2 This search is not case sensitive");
```

```
        mainMessageContentList.add("Rule #3 If your file has extension you need to include it in your search");
        mainMessageContentList.add("Example: abc.txt & ABC.TXT are both valid search terms for a file abc.txt");


        buildMessageContent(firstLine, mainMessageContentList, lastLine, false);
        buildUserInputLine(userInputLine);
    }
    // searchFolder() gives user an option to check if a specific file or folder name exists in the directory and if it exists it enters the folder, or it shows file details
    private static void searchDirectory(File[] fileListToSearch){


        searchDirectoryMessage();


        Scanner scanner = new Scanner(System.in);
        String termToSearch =scanner.next();


        boolean foundIt = false;
        if (fileListToSearch == null){
            System.out.println();
            System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> The folder is empty <<<", '-', '-'));
            System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Let's go back to the file explorer <<<", '-', '-'));
            waitSeconds(2);
            fileExplorer(getFileListFromDirectory(getCurrentDirectoryPath()));
        }else{
            for (int i = 0; i < fileListToSearch.length; i++) {
                String fileName = fileListToSearch[i].getName();
                if (fileName.equalsIgnoreCase(termToSearch)){
                    // code if file found and change foundIt to true
                    System.out.println();
```

```
            if (fileListToSearch[i].isDirectory()){
                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> You found a directory named: " + termToSearch + " <<<", '-', '-'));
                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Lets see the details <<<", '-', '-'));

            }else {
                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> You found a file named: " + termToSearch + " <<<", '-', '-'));
                System.out.println(lineBuilderCenterAligned(getConsoleBoxWidth(), ">>> Lets see the details <<<", '-', '-'));
            }

            if (fileListToSearch[i].isDirectory()){
                setCurrentDirectoryPath(fileListToSearch[i].getPath()); // this helps when we exit the details to end up in the same directory as when we did the search
                directoryDetails(fileListToSearch[i]);
            }else {
                fileDetails(fileListToSearch[i]);
            }
            foundIt = true;
          }
        }
      }
      if (foundIt == false){
        String firstLine = "[ Search Result NOT Found ]";
        String userInputLine = "Please enter your choice here: ";
        String lastLine = "[ Please Enter The Search Term Below ]";

        List<String> mainMessageContentList = new ArrayList<>();
        mainMessageContentList.add("Seams there is no file or folder named: " + termToSearch);
        mainMessageContentList.add("");
        mainMessageContentList.add("[1] Search again");
```

```
        mainMessageContentList.add("[2] Exit Search ");

        buildMessageContent(firstLine, mainMessageContentList, lastLine, false);
        buildUserInputLine(userInputLine);

        // Setting min and max range
        int min = 1;
        int max = 2;
        int option;
        //Getting validated option from user successful
        option = userInput(min, max);

        switch (option) {
            case 1:
                searchDirectory(getFileListFromDirectory(getCurrentDirectoryPath()));
                break;
            case 2:
                fileExplorer(getFileListFromDirectory(getCurrentDirectoryPath()));
                break;
        }
    }
}



//Old methods not in use anymore
private static void goodbyeOldMethod(){
    // Initial setup to make the Goodbye box
```

```
String firstLine = "-------------------------[Goodbye]-------------------------";
String thankYouLine = "Thanks for trying my app!!!";
String seeYouLine = "See you next time!!!";
String lastLine = "-------------------------*****-------------------------";
int boxWidth = firstLine.length();

// Down below is the code for center align the thankYouLine
int indentBefore1;
int indentAfter1;
if ((thankYouLine.length())%2 == 0){
   indentBefore1 = (((boxWidth+thankYouLine.length())/2) - 1);
   indentAfter1 = (((boxWidth-thankYouLine.length())/2)-1);
}else {
   indentBefore1 = (((boxWidth+thankYouLine.length())/2) - 1);
   indentAfter1 = ((boxWidth-thankYouLine.length())/2) - 2;
}

// Down below is the code for center align the seeYouLine
int indentBefore2;
int indentAfter2;
if ((seeYouLine.length())%2 == 0){
   indentBefore2 = (((boxWidth+seeYouLine.length())/2) - 1);
   indentAfter2 = (((boxWidth-seeYouLine.length())/2)-1);
}else {
   indentBefore2 = (((boxWidth+seeYouLine.length())/2) - 1);
   indentAfter2 = ((boxWidth-seeYouLine.length())/2) - 2;
}

// Those are the print statements to make the Goodbye box
System.out.printf("\n+%"+firstLine.length()+"s+ \n", firstLine);
System.out.printf("| %-"+(firstLine.length()-2)+"s |\n", "");
```

```
    String formatString1 ="| %" + indentBefore1 + "s" + " %" + indentAfter1 + "s |";
    System.out.println(String.format(formatString1, thankYouLine, ""));

    String formatString2 ="| %" + indentBefore2 + "s" + " %" + indentAfter2 + "s |";
    System.out.println(String.format(formatString2, seeYouLine, ""));

    System.out.printf("| %-"+(firstLine.length()-2)+"s |\n", "");
    System.out.printf("+%"+firstLine.length()+"s+ \n", lastLine);

    //System.out.println(String.format("| %20s %20s |", "Thanks", ""));
}
private static void mainMenuOldMethod(){
    String firstLine = "--------------------------------[Main Menu]--------------------------------";
    String developerLine = "Application Developer : " + developerName;
    String applicationLine = "Application Name: " + appName;
    String lastLine = "-----------------------------------*****-----------------------------------";

    System.out.printf("\n+%"+firstLine.length()+"s+ \n", firstLine);
    System.out.printf("| %-"+(firstLine.length()-2)+"s |\n", "");

    System.out.printf("| %-"+(firstLine.length()-2)+"s |\n", "[1] File Explorer");
    System.out.printf("| %-"+(firstLine.length()-2)+"s |\n", "[2] List of Files");
    System.out.printf("| %-"+(firstLine.length()-2)+"s |\n", "[3] Actions for Files");
    System.out.printf("| %-"+(firstLine.length()-2)+"s |\n", "[4] Update the Folder Path");
    System.out.printf("| %-"+(firstLine.length()-2)+"s |\n", "[5] Exit");
    System.out.printf("| %-"+(firstLine.length()-2)+"s |\n", "");

    //System.out.printf("| %-"+(firstLine.length()-2)+"s |\n", "");
    //System.out.printf("| %-"+(firstLine.length()-2)+"s |", "Please enter your option: ");
    //System.out.printf("\n| %-"+(firstLine.length()-2)+"s |\n", "");
```

```
        System.out.printf("+%"+firstLine.length()+"s+ \n", lastLine);
        System.out.print("Please enter your option: ");


    }
    private static void filesExplorerOld(){
        String firstLine = "[ File Explorer ]";
        String userInputLine = "Please enter your choice here: ";
        String lastLine = "[ Please Enter Your Choice Below ]";

        int numbering = 0;

        System.out.println();
        System.out.println(lineBuilderCenterAligned(consoleBoxWidth, firstLine, '+', '-'));
        System.out.println(lineBuilderCenterAligned(consoleBoxWidth, "", '|', ' '));

        System.out.println(lineBuilderLeftAligned(consoleBoxWidth, "General File Explorer options:", '|', ' '));
        System.out.println(lineBuilderCenterAligned(consoleBoxWidth, "", '|', ' '));

        System.out.println(lineBuilderLeftAligned(consoleBoxWidth, "["+(++numbering)+"]" + " Go to Main Menu", '|', ' '));
        System.out.println(lineBuilderLeftAligned(consoleBoxWidth, "["+(++numbering)+"]" + " Create a file", '|', ' '));
        System.out.println(lineBuilderLeftAligned(consoleBoxWidth, "["+(++numbering)+"]" + " Sort file ascending", '|', ' '));
        System.out.println(lineBuilderLeftAligned(consoleBoxWidth, "["+(++numbering)+"]" + " Sort file descending", '|', ' '));
        System.out.println(lineBuilderLeftAligned(consoleBoxWidth, "["+(++numbering)+"]" + " Search folder", '|', ' '));
        System.out.println(lineBuilderLeftAligned(consoleBoxWidth, "["+(++numbering)+"]" + " Exit App", '|', ' '));
```

```
        System.out.println(lineBuilderCenterAligned(consoleBoxWidth, "", '|', ' '));



        File directoryPath = new File(absoluteAppDirectoryPath);
        File filesList[] = directoryPath.listFiles();

        System.out.println(lineBuilderLeftAligned(consoleBoxWidth, "Select a file for details and more
options:", '|', ' '));
        System.out.println(lineBuilderCenterAligned(consoleBoxWidth, "", '|', ' '));



        int loopRepetitions = 0;
        for (int i = 0; i < filesList.length; i++){
            numbering++;
            //System.out.println(lineBuilderLeftAligned(consoleBoxWidth, "["+(i+1)+"] "+
filesList[i].getName() +  " --> " + filesList[i].getAbsolutePath(), '|', ' '));
            System.out.println(lineBuilderLeftAligned(consoleBoxWidth, "["+(numbering)+"] "+
filesList[i].getName() +  "", '|', ' '));
            loopRepetitions++;
        }

        System.out.println(lineBuilderCenterAligned(consoleBoxWidth, "", '|', ' '));
        System.out.println(lineBuilderCenterAligned(consoleBoxWidth, lastLine, '+', '-'));
        System.out.println();

        //System.out.println(userInputLine); // Input in next line
        System.out.print(userInputLine); // Input in same line
    }
    private static void fileDetailsOld(String path, int index){
        File directoryPath = new File(absoluteAppDirectoryPath);
        File filesList[] = directoryPath.listFiles();
```

```
        //need index


        System.out.println(lineBuilderLeftAligned(consoleBoxWidth, filesList[index].getName() +  "", '|',
' '));
        System.out.println(lineBuilderLeftAligned(consoleBoxWidth, filesList[index].getAbsolutePath() +
"", '|', ' '));
        System.out.println(lineBuilderLeftAligned(consoleBoxWidth, filesList[index].getAbsolutePath() +
"", '|', ' '));


    }
    private static int calculateIndexOldStuff(int option, int numbering, int loopRepetitions){
        int indexToReturn;
        indexToReturn = (option - (numbering - loopRepetitions))-1;
        return indexToReturn;
    }

    // Not in use anymore
    private static String getUserInput(){
        String userInputString;
        Scanner scanner = new Scanner(System.in);
        userInputString = scanner.next();
        //scanner.close(); This was causing issues


        return userInputString;
    }
    private static void deleteDirectoryProtocolMessage(File fileToProcess, double fileSizeInKiloBytes){
        String firstLine = "[ Confirm you want to delete ]";
        String userInputLine = "Please enter your choice here: ";
        String lastLine = "[ Please Enter Your Choice Below ]";


        List<String> mainMessageContentList = new ArrayList<>();
```

```
        mainMessageContentList.add("Directory name: " + fileToProcess.getName());
        mainMessageContentList.add("Directory path: " + fileToProcess.getAbsolutePath());
        mainMessageContentList.add("Directory size: " + String.format("%.5f", fileSizeInKiloBytes));
        mainMessageContentList.add("");
        mainMessageContentList.add("[1] To CONFIRM deletion");
        mainMessageContentList.add("[2] To CANCEL deletion");

        buildMessageContent(firstLine, mainMessageContentList, lastLine, false);
        buildUserInputLine(userInputLine);
    }
}
```

Unique selling points

- App has great presentation for a console app,
- Instructions to user are easy to understand containing detail instructions with steps where they might be needed,
- User interaction is very simple with minimal input using only numbers from the keyboard,
- App file explorer menu contains general options besides file & directory options where the user can check details related to a file or a directory before deciding.
- Besides navigation through directories user can also create or delete files
- Searching files was never easier in a console app, user can search for files by sorting them or by doing an actual search,
- App user input has great management which provides great feedback in case of wrong input
- User can reset the app or update app working directory without the need to terminate the app

Conclusion

Application is prepared according to required features and tested. App project directory contains all the needed and extra documentation including a report, app use snips and workflow charts.