Umrabulo Session #04 – Login Frame

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Module: AOP216D/AOR216D

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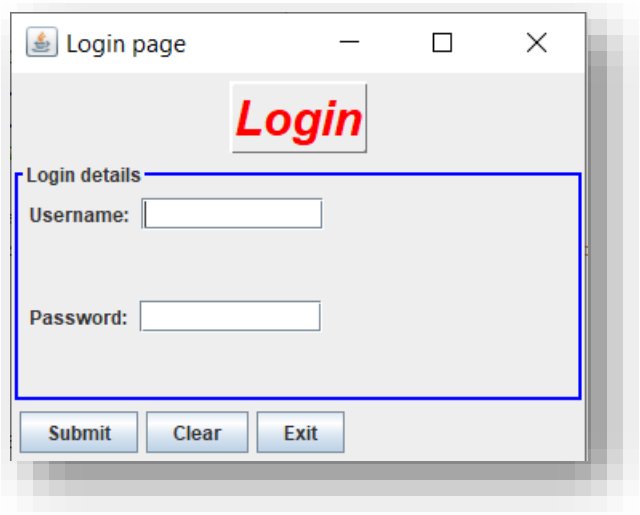
Introduction

In this Mrabulo Session were are going to create a login frame using the **JFrame** class. The tutorial will mainly introduce the student to the **JPasswordField** Swing component . The developed solution will be stored on **GitHub**. The tutorial will conclude with a **DIY** (Do It Yourself) exercise.

Problem statement

Create a login frame and display it. The output should resemble the following frame:



Solution

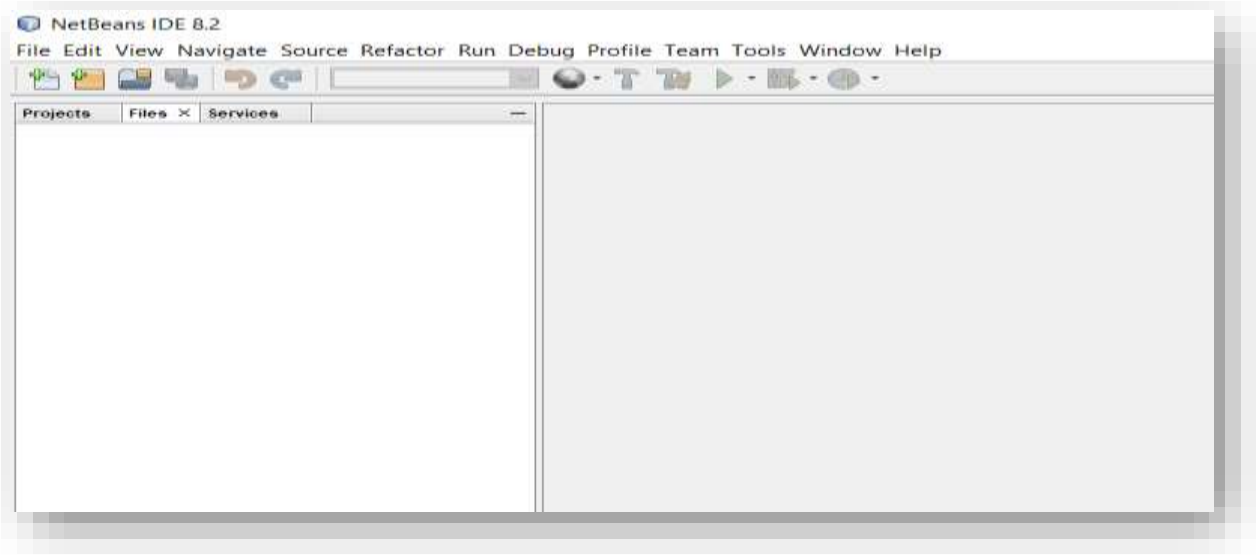
The solution is divided into three parts, namely A, B and C. In part A we create the frame, in B we test it, and in C we store our source code on GitHub.

Part A: Create the frame

In this section we create the actual frame in a backend class.

Step 1

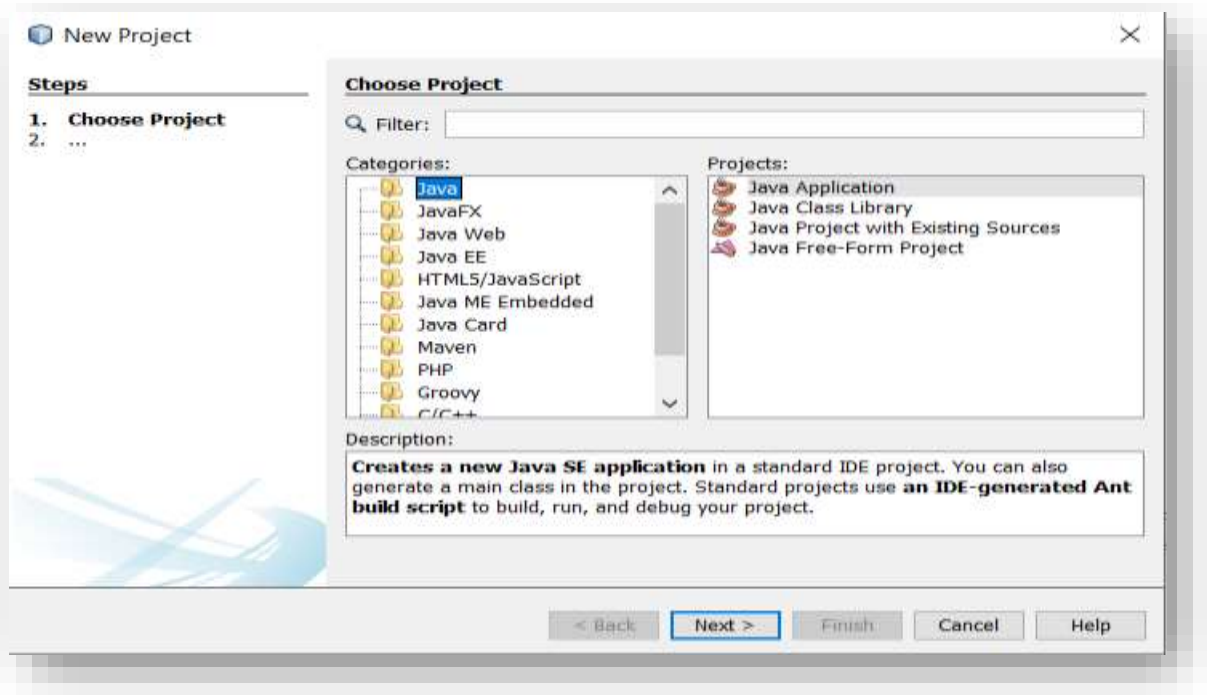
Launch NetBeans.



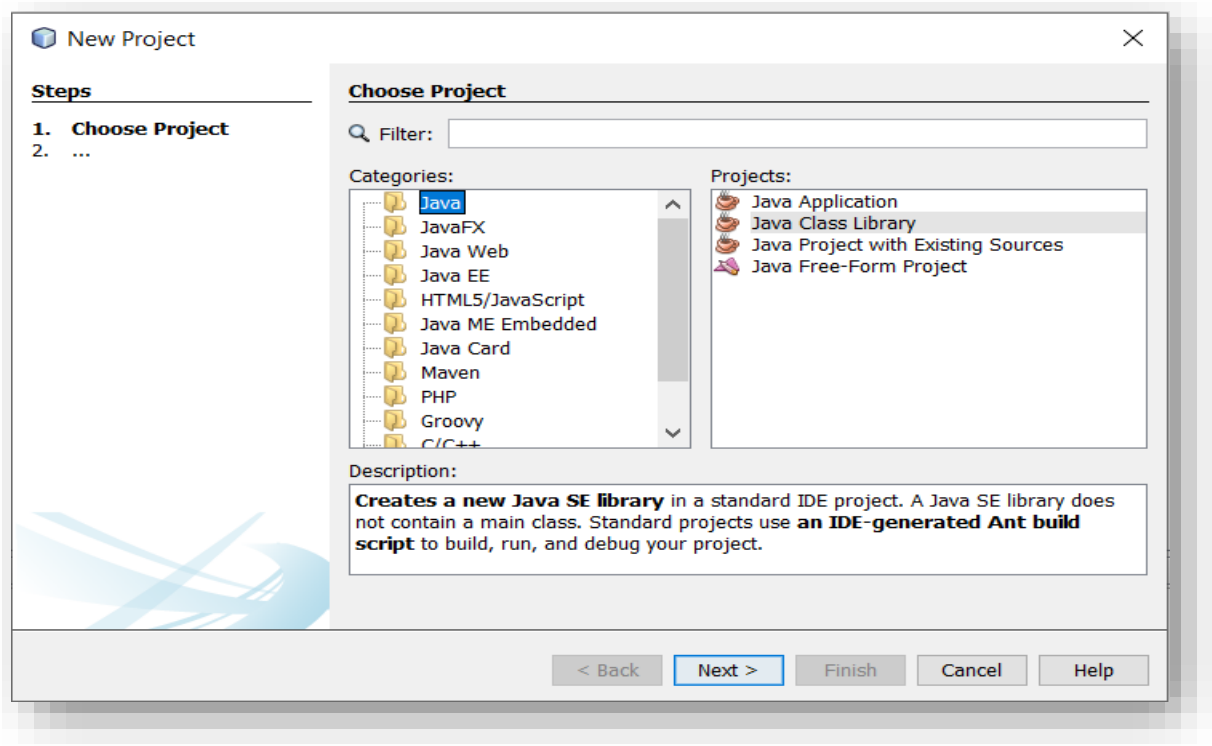
Step 2

Create a Java Project. Perform the following tasks:

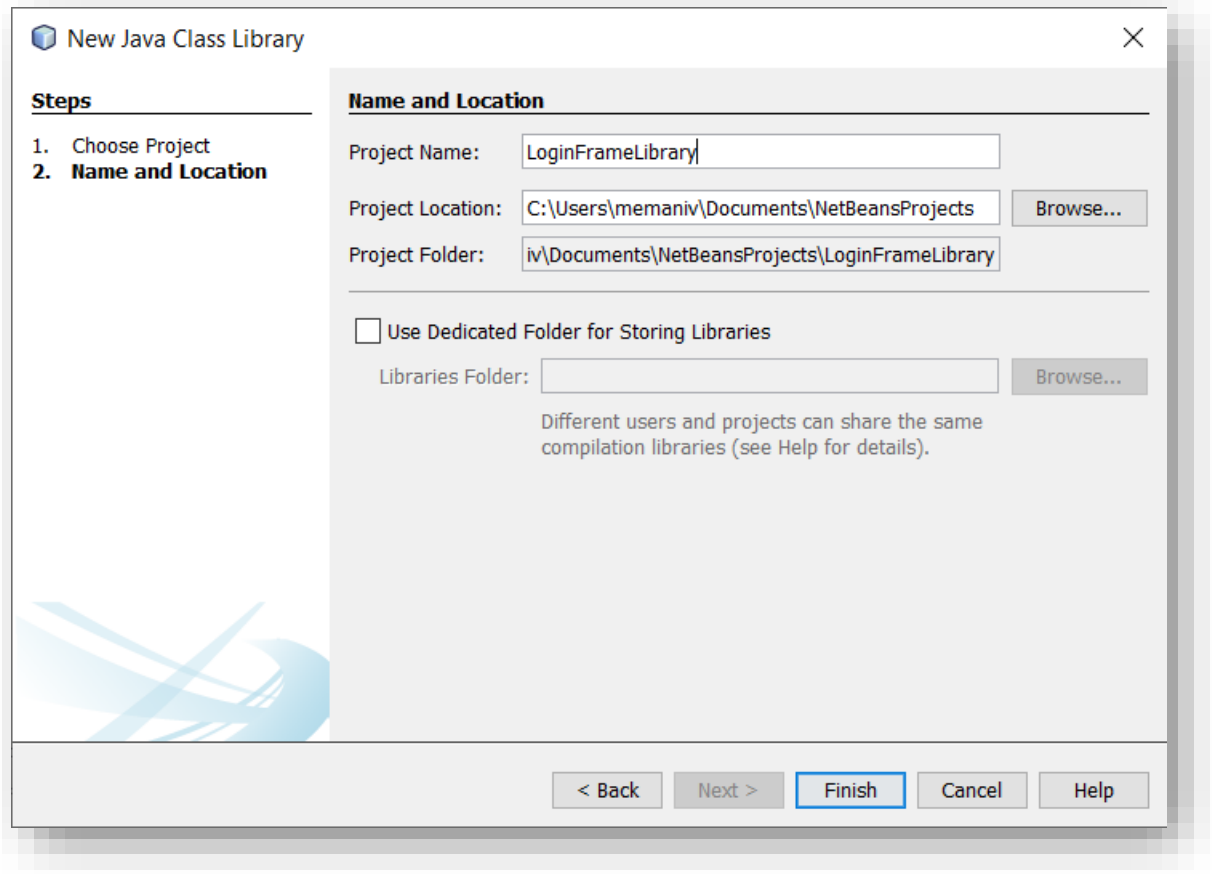
- Click on **File | New Project**



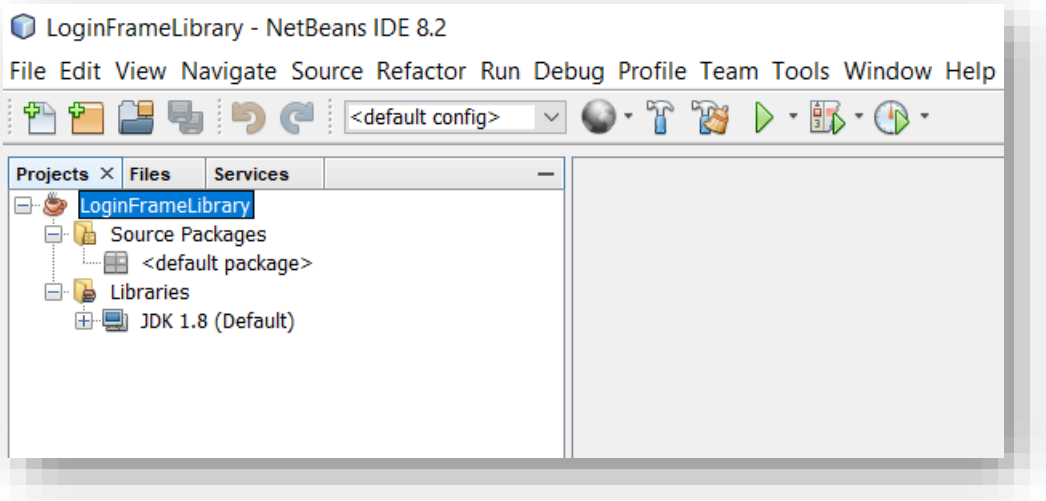
- Select **Java** under **Categories** and **Java Class Library** under **Projects**.



- Click **Next**. Name the project **LoginFrameLibrary**.



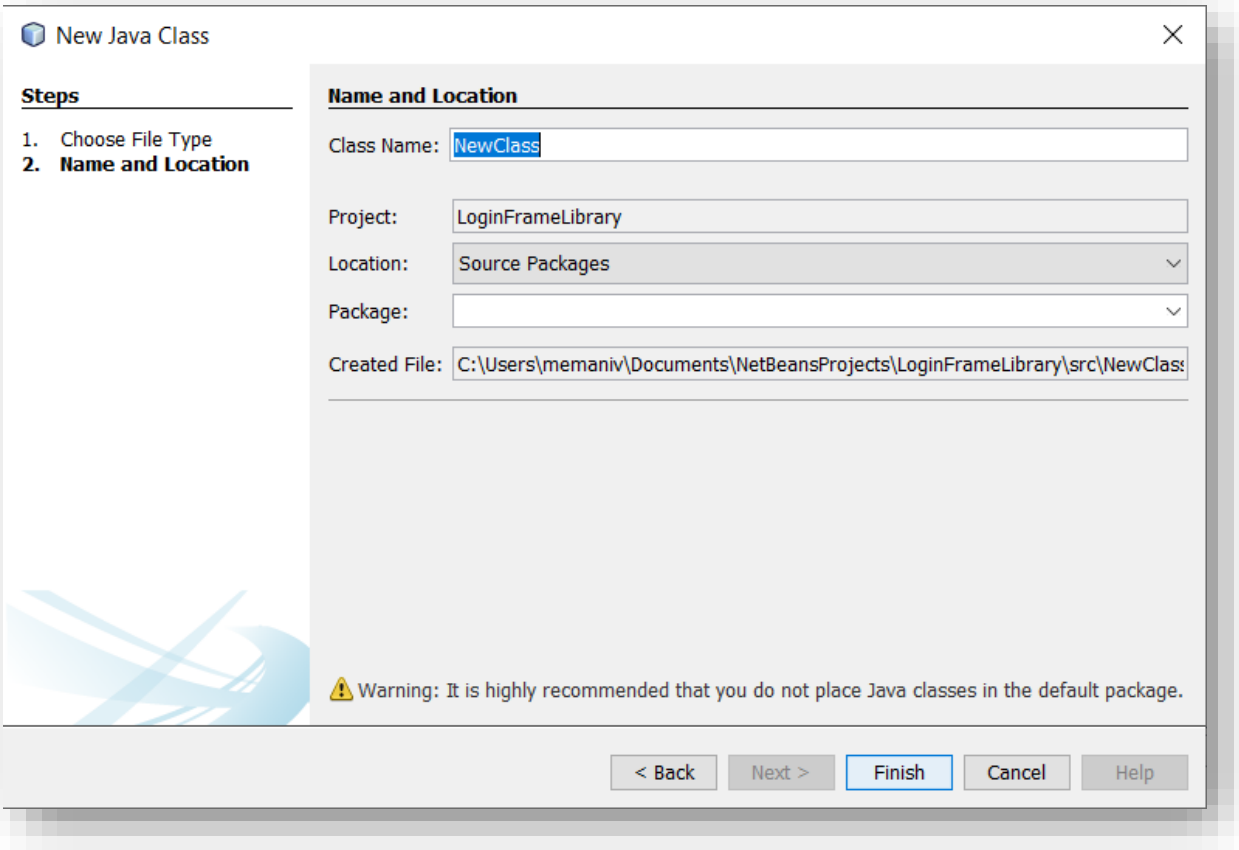
- Click **Finish**.



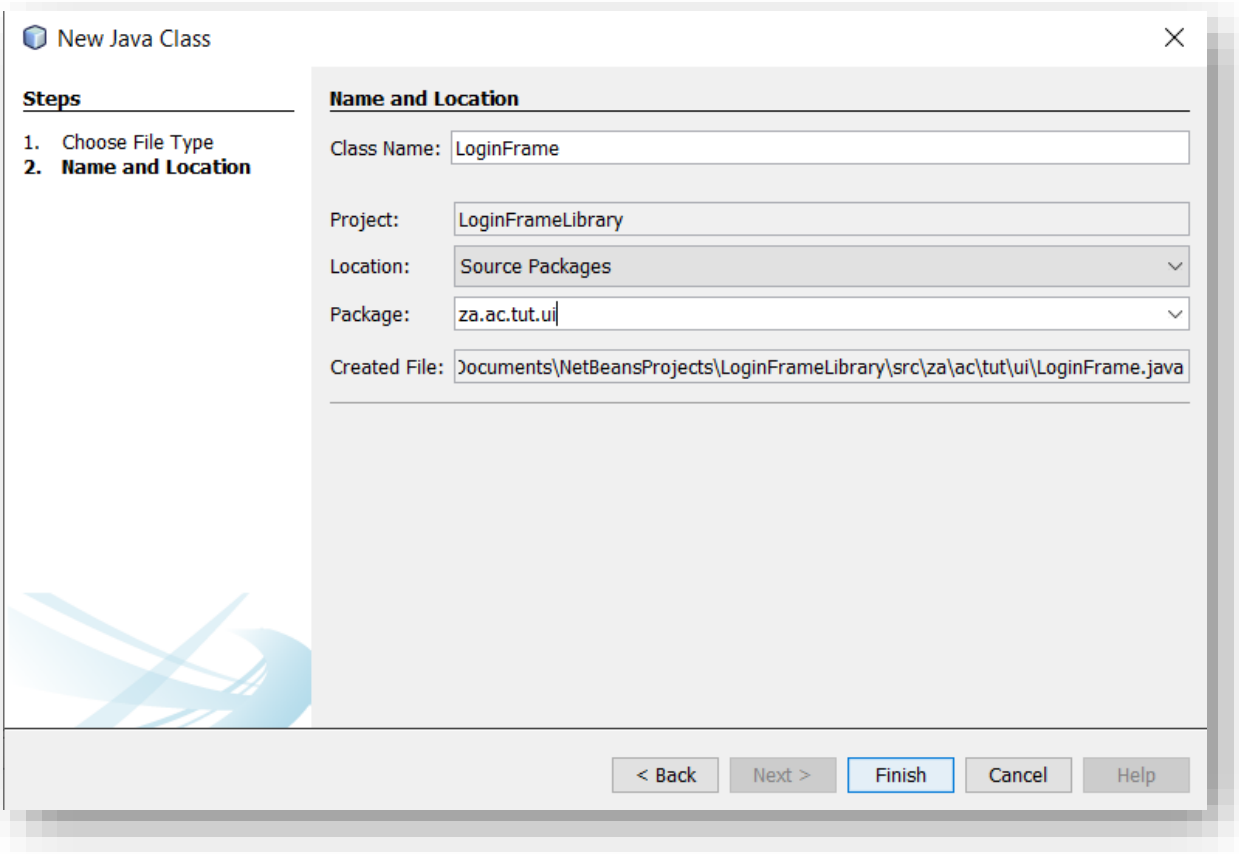
Step 3

Create the frame. Perform the following tasks:

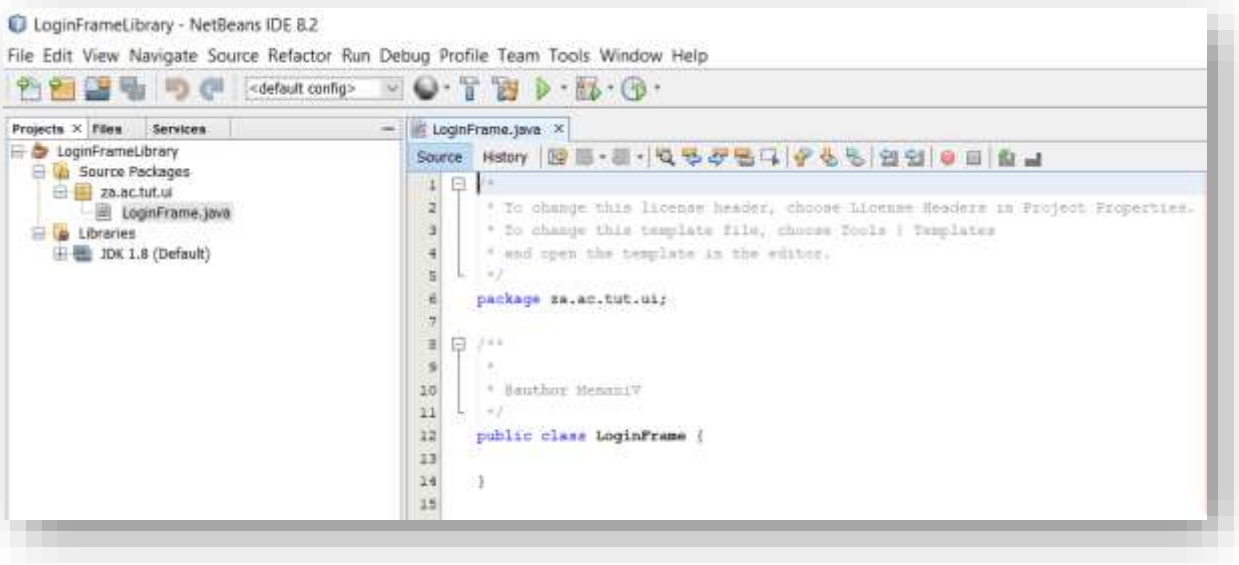
- Right click on the project and select **New | Java class**



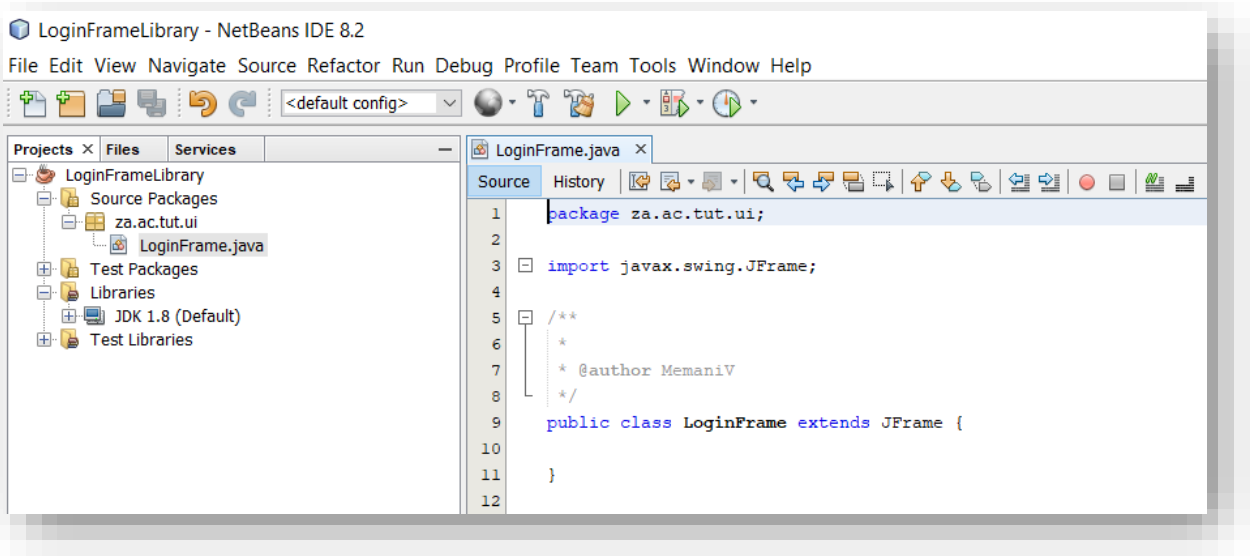
- Name the class as **LoginFrame** and package it under **za.ac.tut.ui**



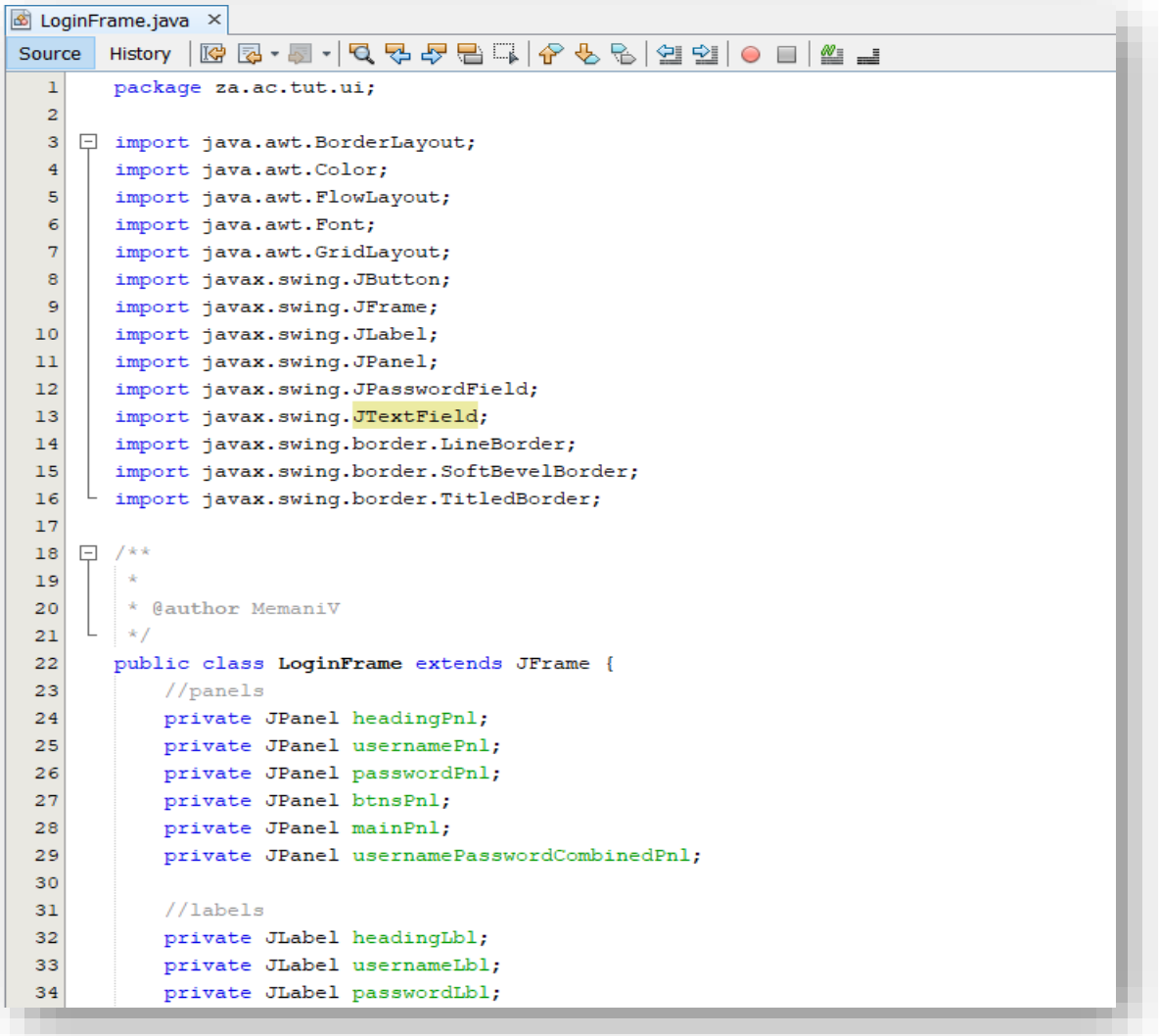
- Click **Finish**.



- Make the **LoginFrame** class a frame by extending the **JFrame**.



- Create the frame.



```
36      //textfields
37      private JTextField usernameTxtFld;
38
39      //password field
40      private JPasswordField passwordFld;
41
42      //buttons
43      private JButton submitBtn;
44      private JButton clearBtn;
45      private JButton exitBtn;
46
47      //construct the frame
48      public LoginFrame(){
49          //basic frame seetings
50          setTitle("Login page");
51          setSize(600, 650);
52          setResizable(true);
53          setDefaultLookAndFeelDecorated(true);
54          setDefaultCloseOperation(EXIT_ON_CLOSE);
55
56          //create panels
57          headingPnl = new JPanel(new FlowLayout(FlowLayout.CENTER));
58          usernamePnl = new JPanel(new FlowLayout(FlowLayout.LEFT));
59          passwordPnl = new JPanel(new FlowLayout(FlowLayout.LEFT));
60          btnsPnl = new JPanel(new FlowLayout(FlowLayout.LEFT));
61
62          usernamePasswordCombinedPnl = new JPanel(new GridLayout(2,1,1,1));
63          usernamePasswordCombinedPnl.setBorder(new TitledBorder(new LineBorder(Color.BLUE, 2), "Login details"));
64
65          mainPnl = new JPanel(new BorderLayout());
```

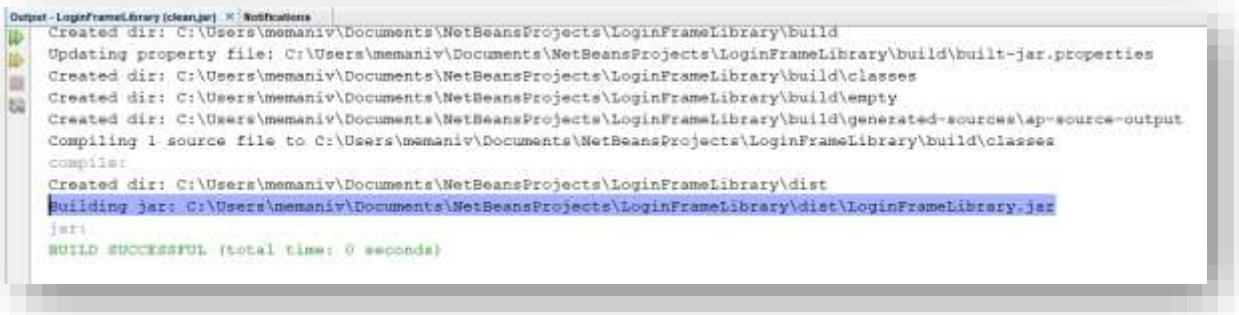
```
67          //create labels
68          headingLbl = new JLabel("Login");
69          headingLbl.setBorder(new SoftBevelBorder(SoftBevelBorder.RAISED));
70          headingLbl.setFont(new Font(Font.SANS_SERIF, Font.BOLD + Font.ITALIC, 30));
71          headingLbl.setForeground(Color.RED);
72
73          usernameLbl = new JLabel("Username: ");
74          passwordLbl = new JLabel("Password: ");
75
76          //create fields
77          usernameTxtFld = new JTextField(10);
78          usernameTxtFld.setFocusable(true);
79
80          passwordFld = new JPasswordField(10);
81
82          //create buttons
83          submitBtn = new JButton("Submit");
84          clearBtn = new JButton("Clear");
85          exitBtn = new JButton("Exit");
86
87          //add components to respective panels
88          headingPnl.add(headingLbl);
89
90          usernamePnl.add(usernameLbl);
91          usernamePnl.add(usernameTxtFld);
92
93          passwordPnl.add(passwordLbl);
94          passwordPnl.add(passwordFld);
95
96          usernamePasswordCombinedPnl.add(usernamePnl);
97          usernamePasswordCombinedPnl.add(passwordPnl);
98
99          btnsPnl.add(submitBtn);
100         btnsPnl.add(clearBtn);
101         btnsPnl.add(exitBtn);
102
```

```
103             mainPnl.add(headingPnl, BorderLayout.NORTH);
104             mainPnl.add(usernamePasswordCombinedPnl, BorderLayout.CENTER);
105             mainPnl.add(btnsPnl, BorderLayout.SOUTH);
106
107             //add the main panel to the panel of the fraame
108             add(mainPnl);
109
110             //pack the frame
111             pack();
112
113             //make the frame visible
114             setVisible(true);
115         }
116
117     }
118
```

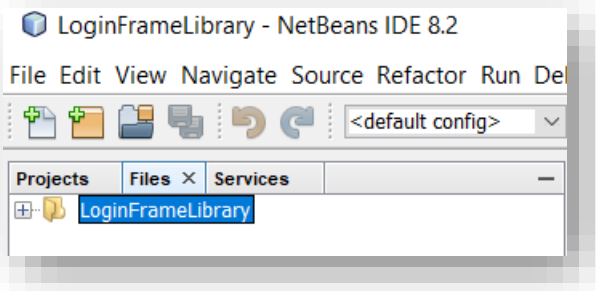
Step 4

Compile the project. Perform the following tasks:

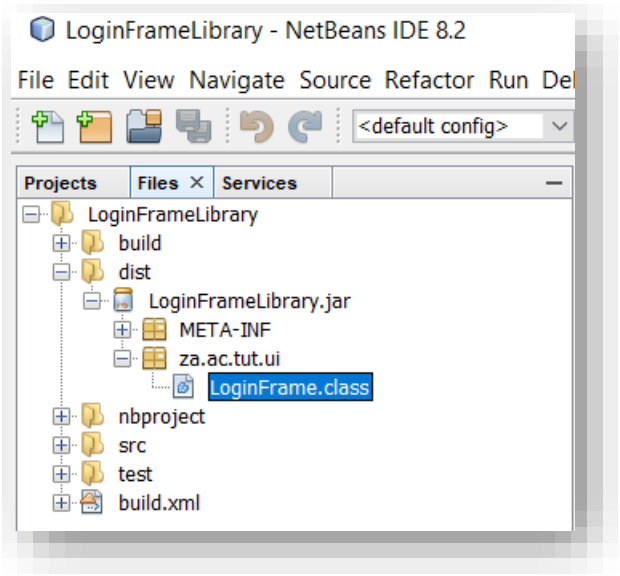
- Right click on the project and select **Clean and Build**.



- Select the **Files** tab.



- Expand the folder. Under the **dist** folder you have the **LoginFrameLibrary.jar** file that contains the **LoginFrame.class** file.



Part B: Test the frame in an application

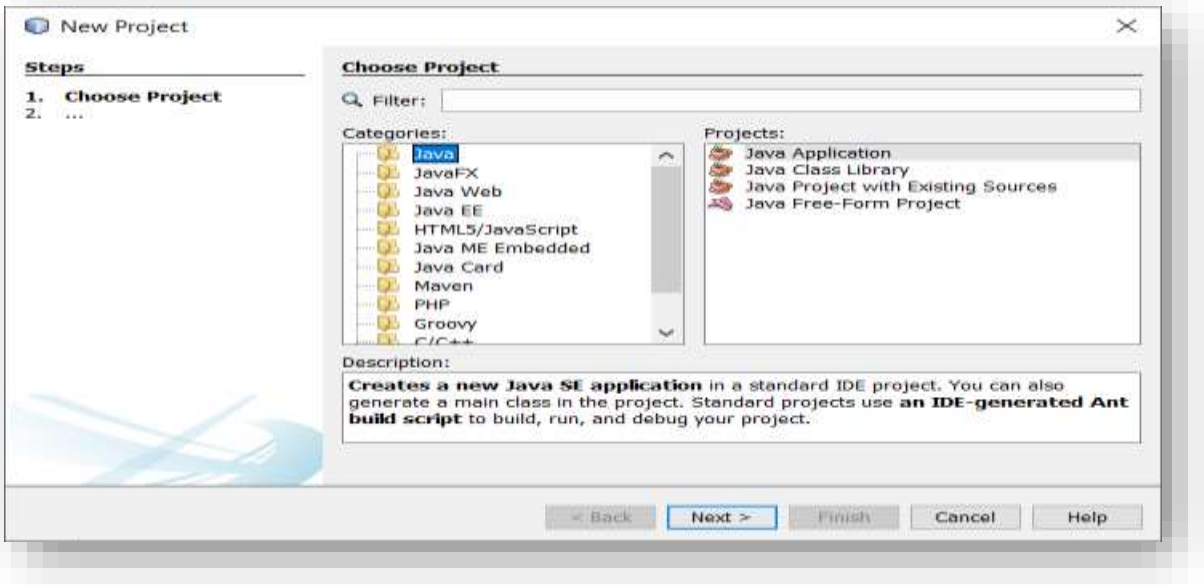
In this section we create an application that executes the GUI class. To accomplish the task, we will do the following:

- Create a frontend class.
- Include the frame's library in the current project.
- Import the frame class.
- Instantiate the frame.
- Run the program.

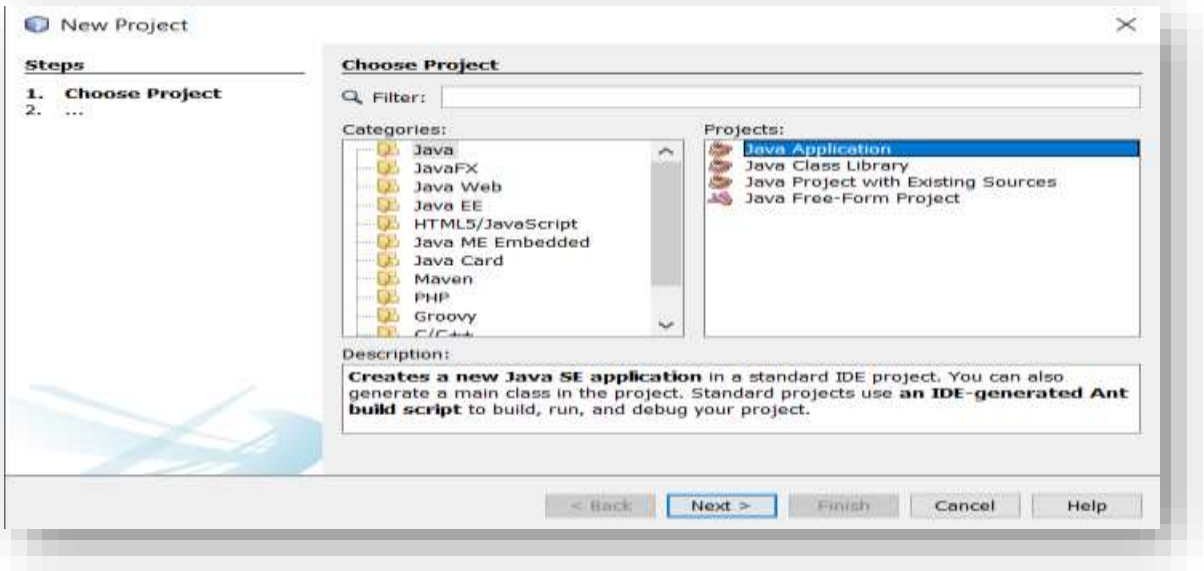
Step 1

Create a Java project application. To do this, perform the following tasks:

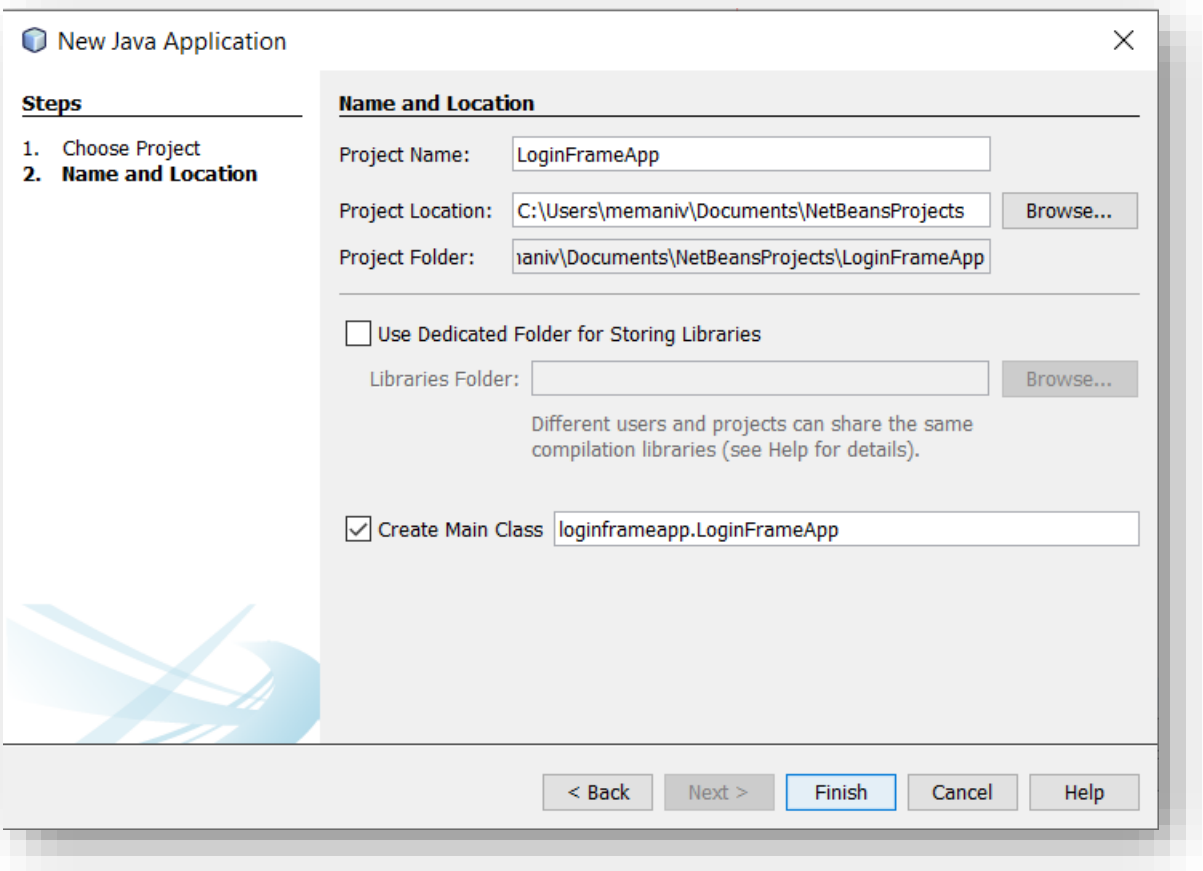
- Click on **File | New Project**.



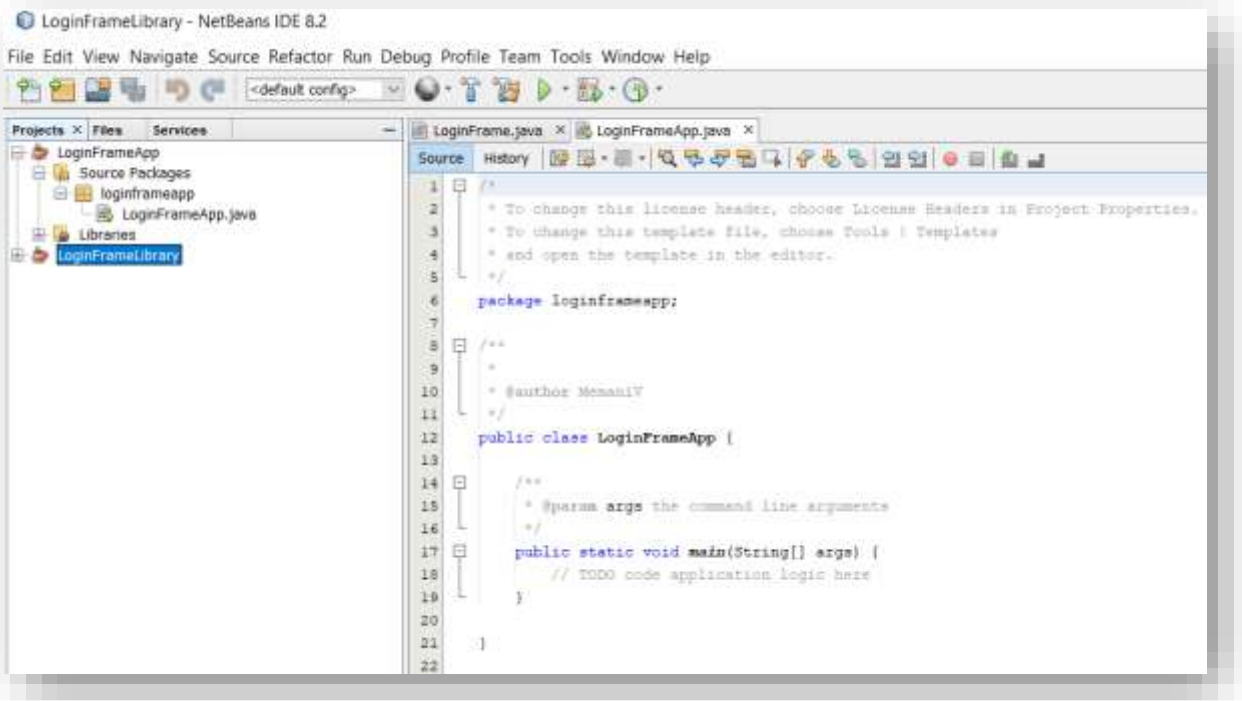
- Select **Java** under **Categories** and **Java Application** under **Projects**.



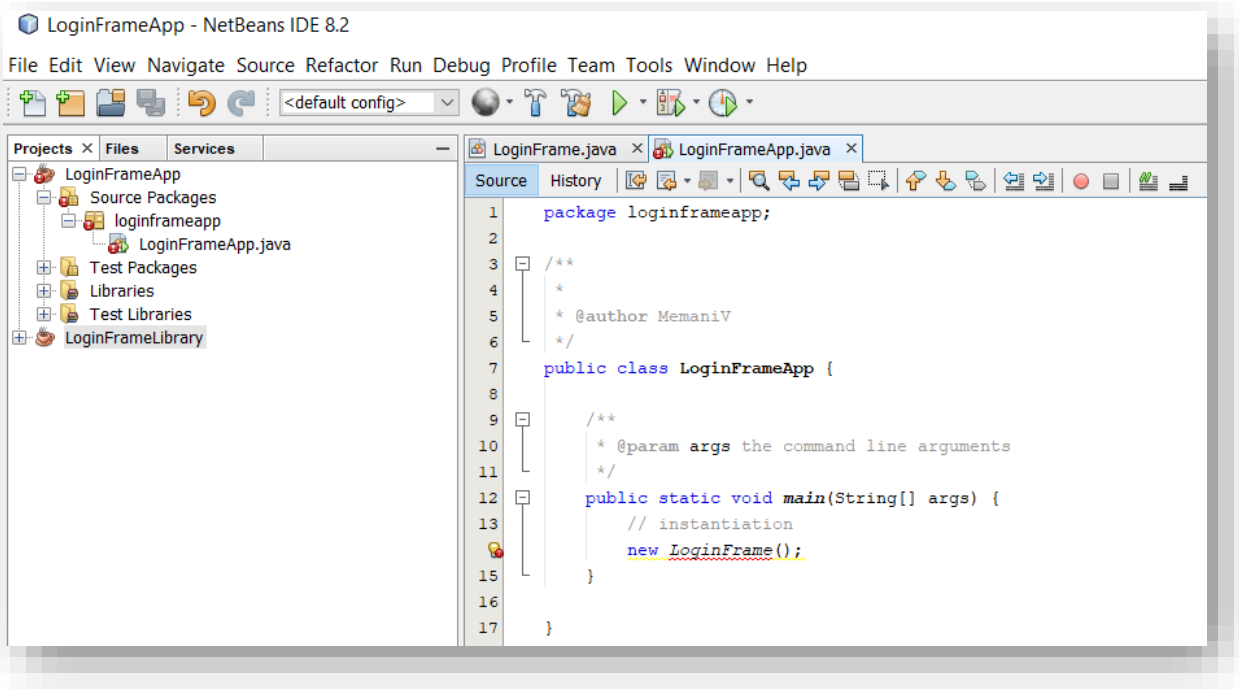
- Click **Next**. Name the project as **LoginFrameApp**.



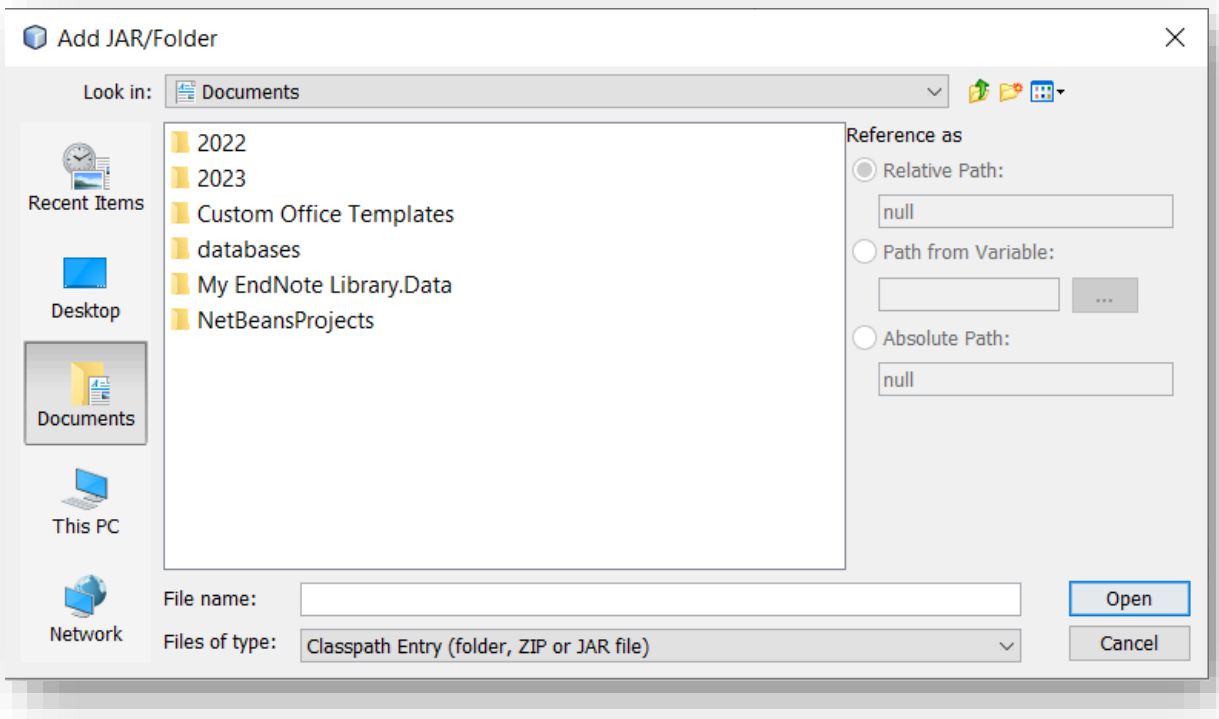
- Click **Finish**.



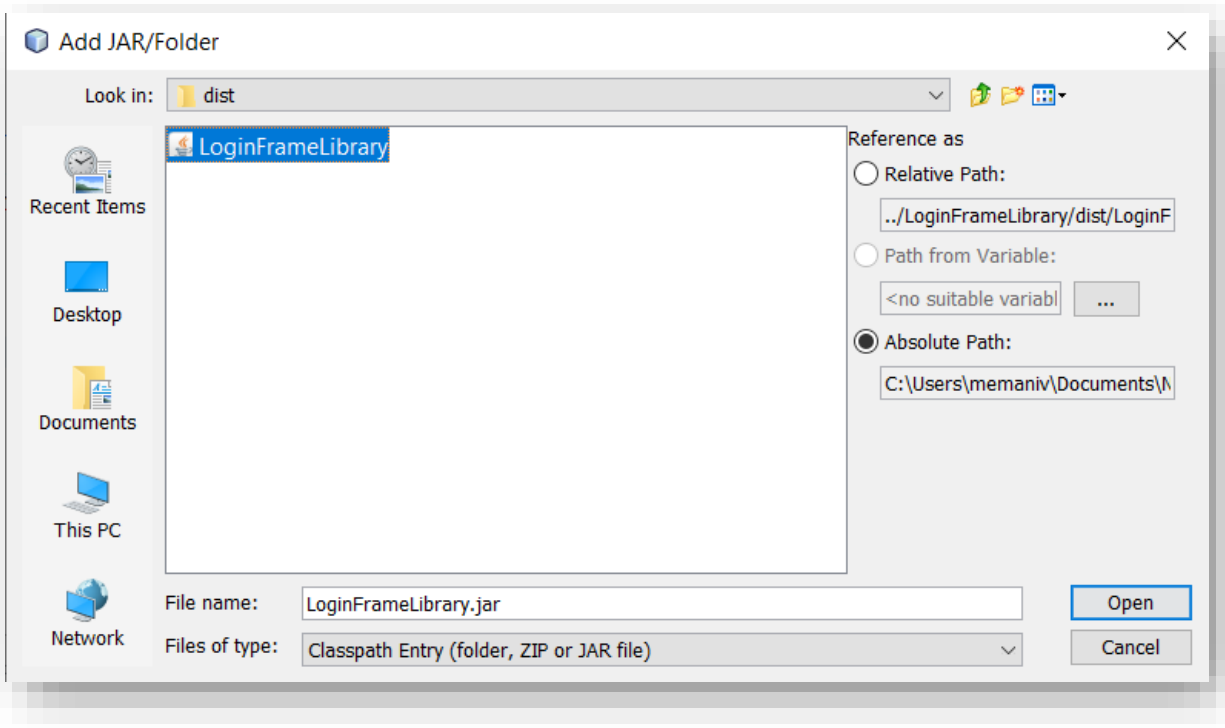
- Inside the main method, instantiate **LoginFrame**.



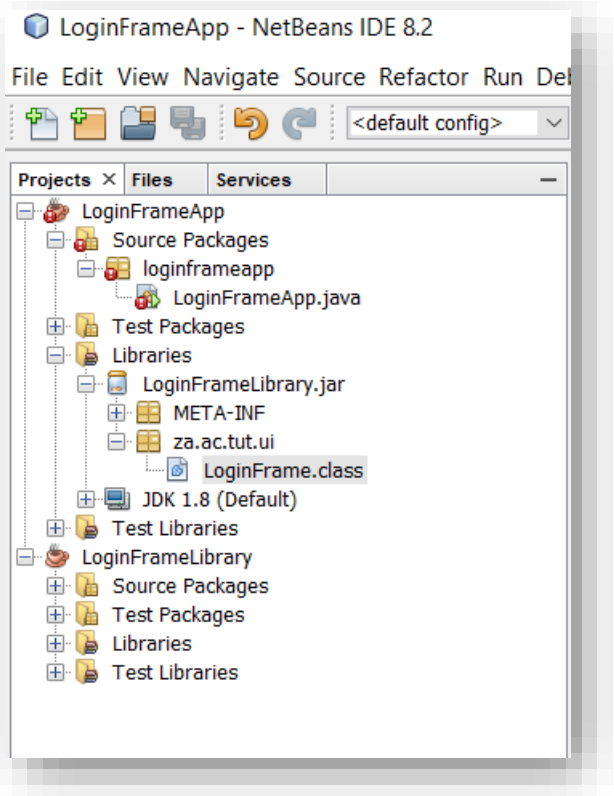
- There's an error. **LoginFrame** is not visible inside the application. It is located in the jar file. Let's include the jar file library to the current project. Perform the following tasks:
  1. Right click on the **Libraries** folder and select **Add Jar/Folder**.



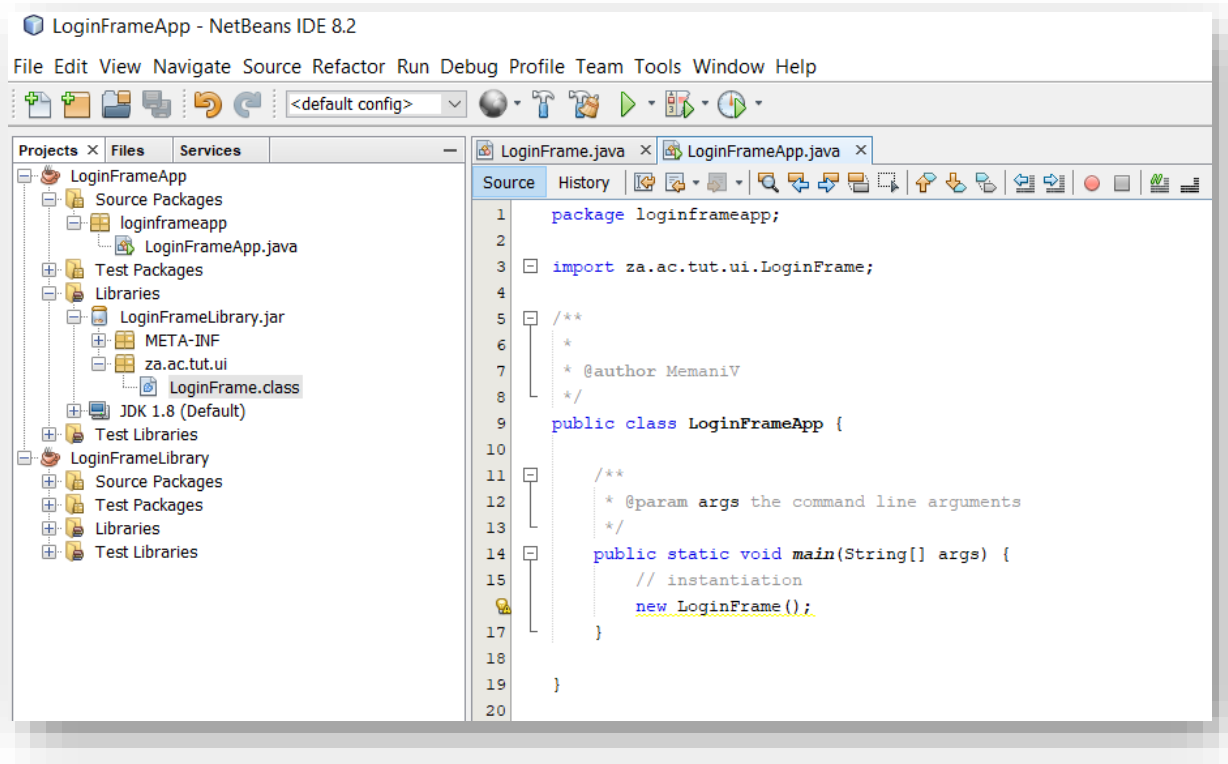
2. Navigate to the location of **LoginFrameLibrary.jar** file.



3. Select the file and click on **Open**.

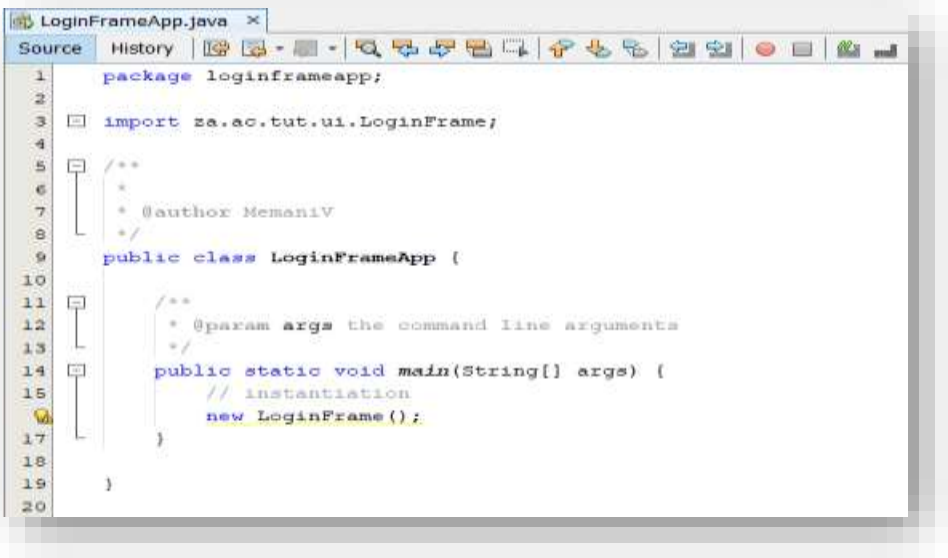


4. Now the LoginFrame library is included in the current project. Now import the class. The error disappears.



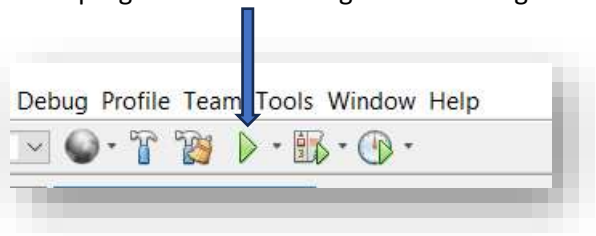
Step 2

Instantiate the frame.

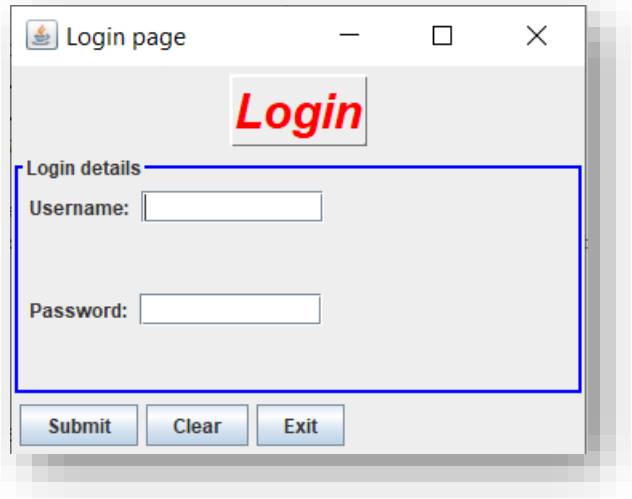


Step 3

Run the program. Click on the green icon image.



Output:



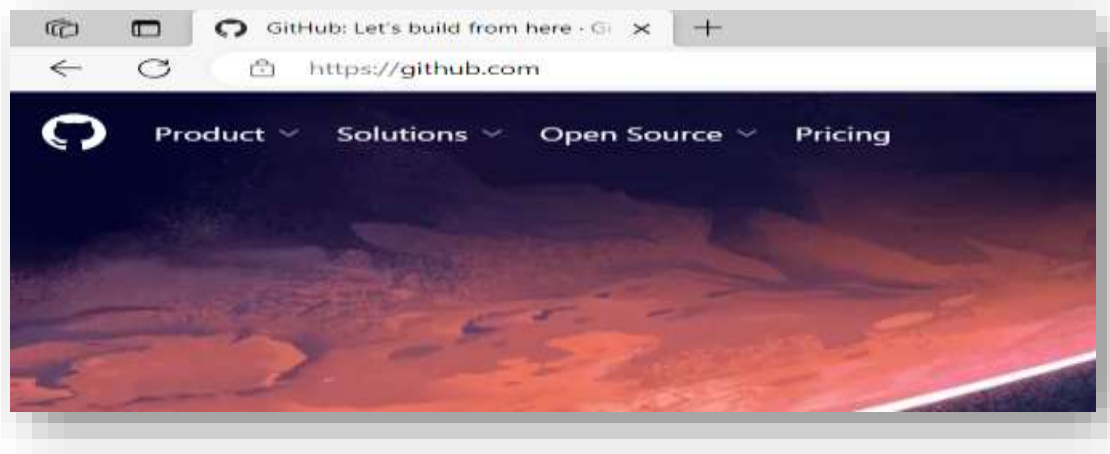
Part C: Store the source code on GitHub

In this section we are going to store the source code of **LoginFrameLibrary.java** and **LoginFrameApp.java** on GitHub. To accomplish this, we will perform the following:

- Get to the GitHub website.
- Create a repository for our project.
- Upload the two files **(LoginFrameLibrary.java** and **LoginFrameApp.java)** to the repository.
- Get a link of the repository. This we will share with anyone we want to access our repository.

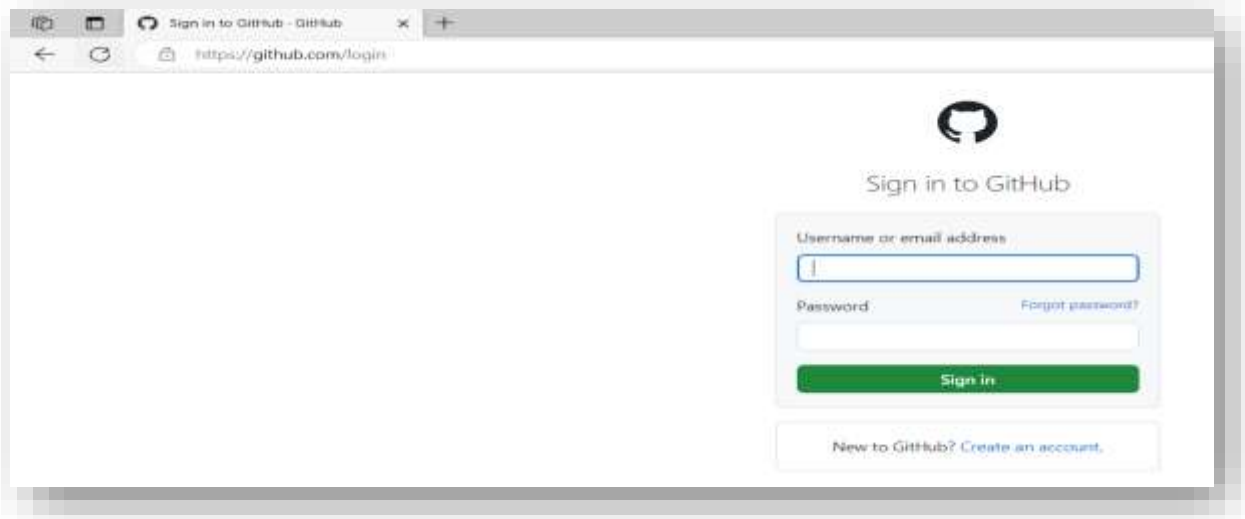
Step 1

Go to the GitHub website.

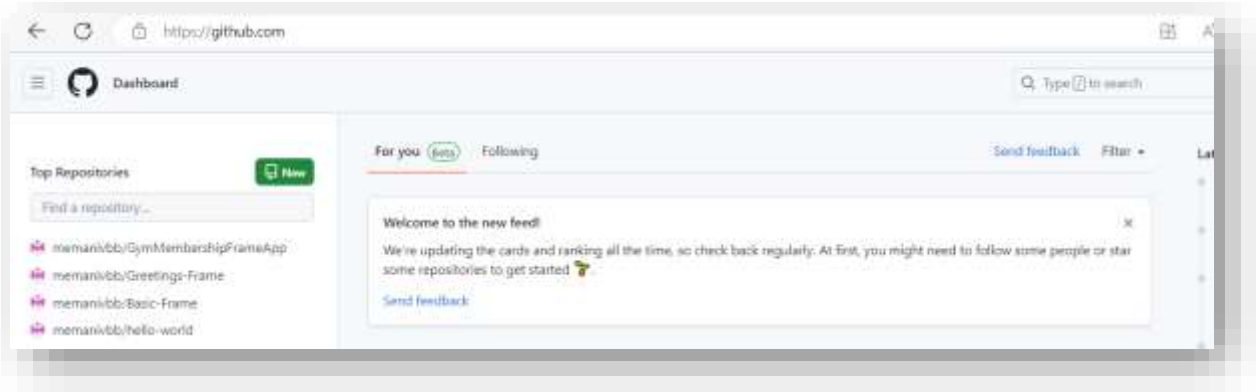


Step 2

On the far upper right of the page, click on **Sign in** if you have an account, or **Sign up** to create a new one.

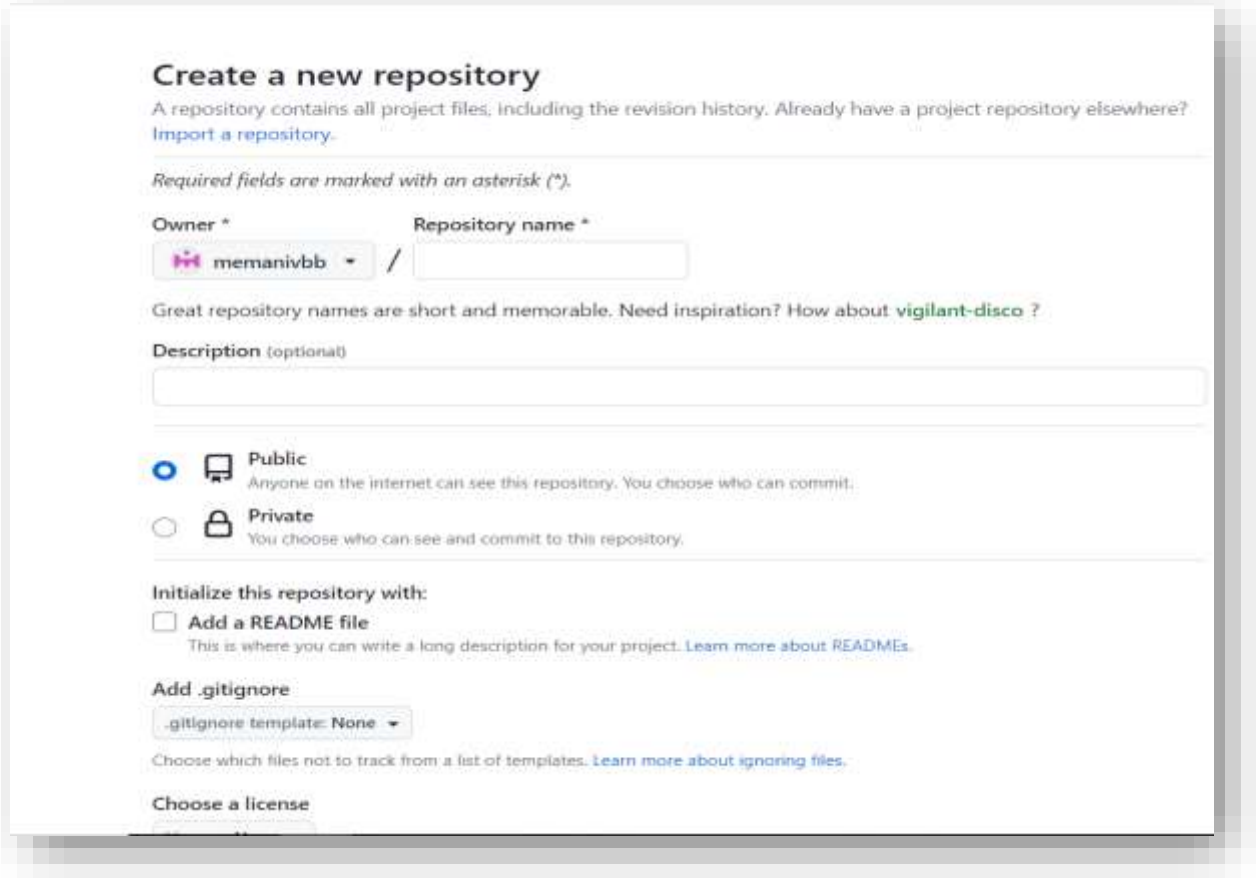


After successful login you will see something along the lines:



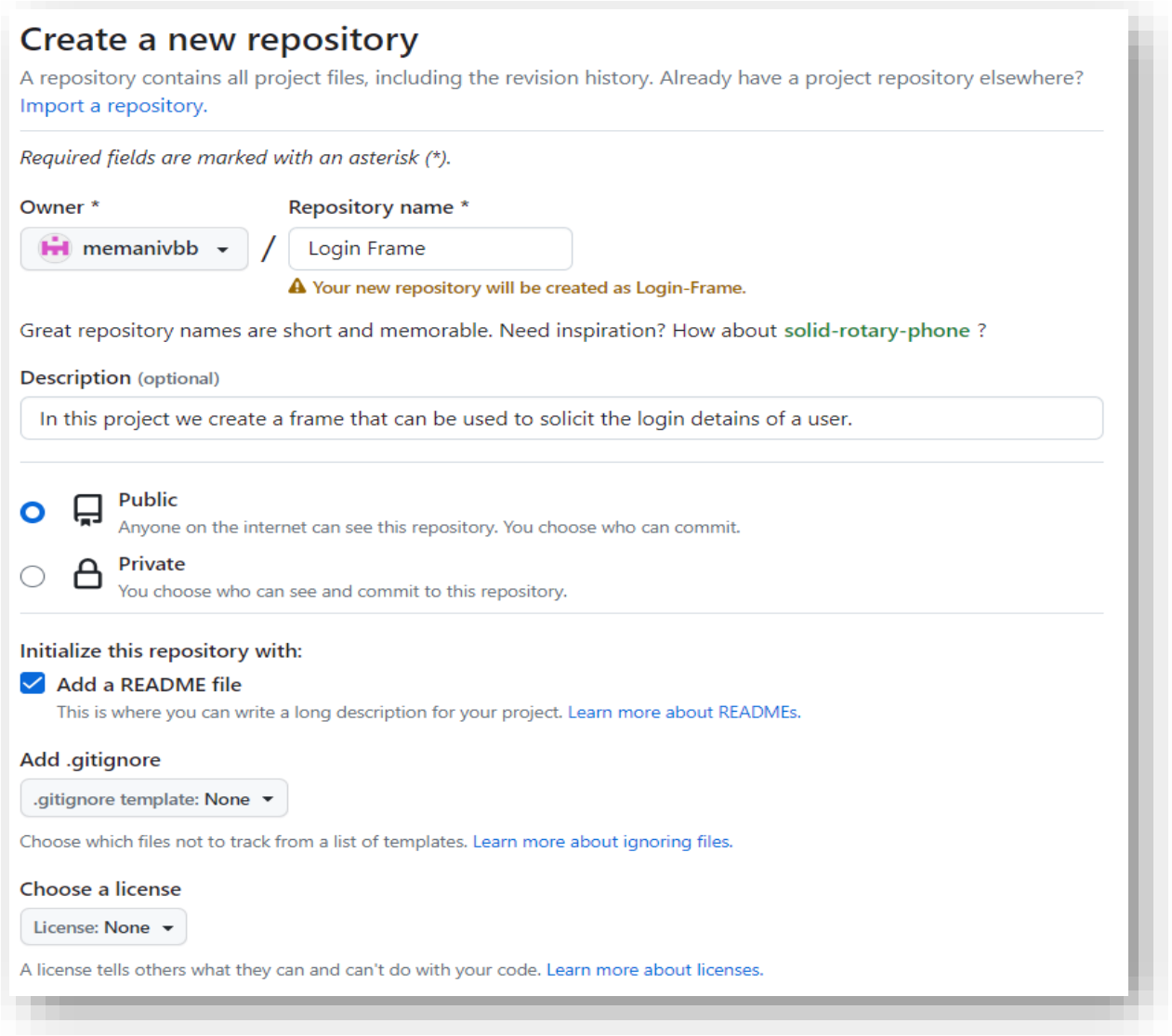
Step 3

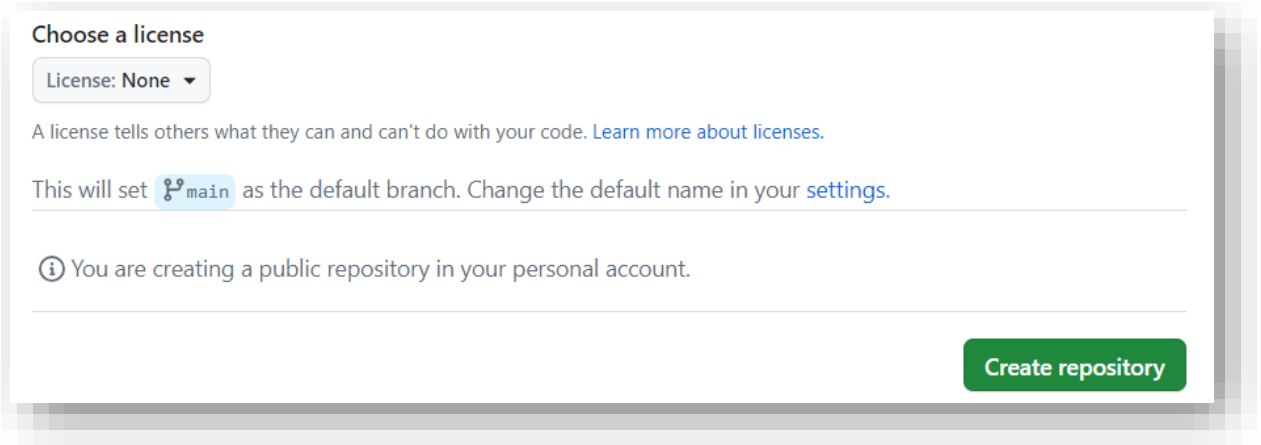
Click on **New** to create a new repository.



Step 4

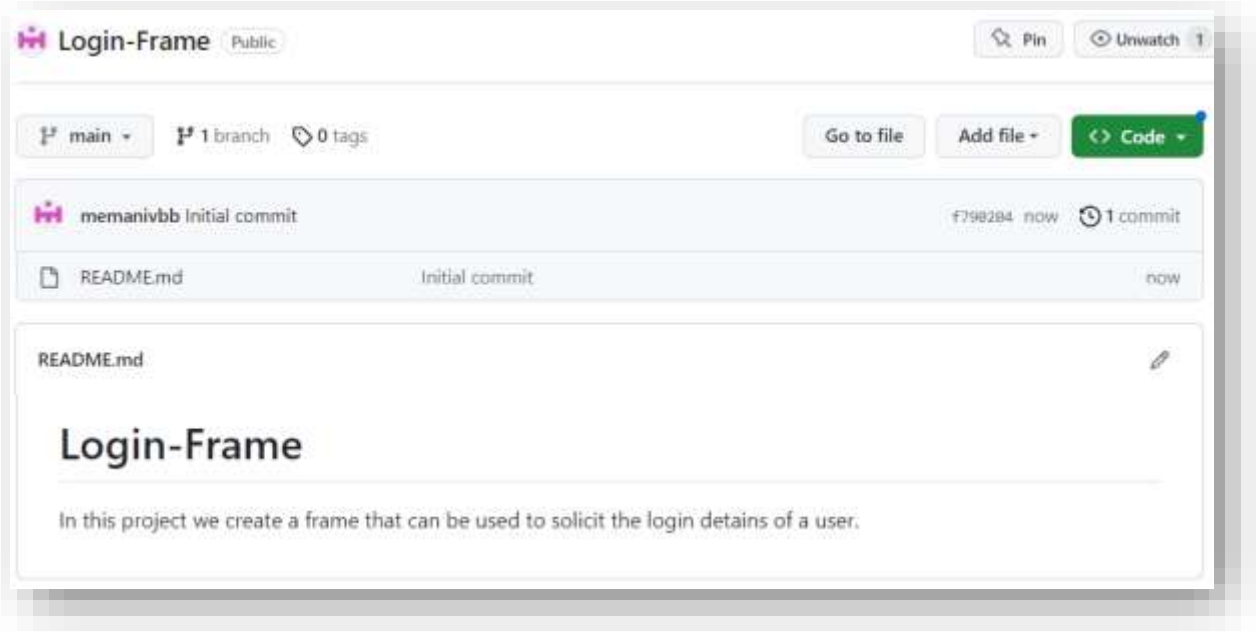
Fill in the form.





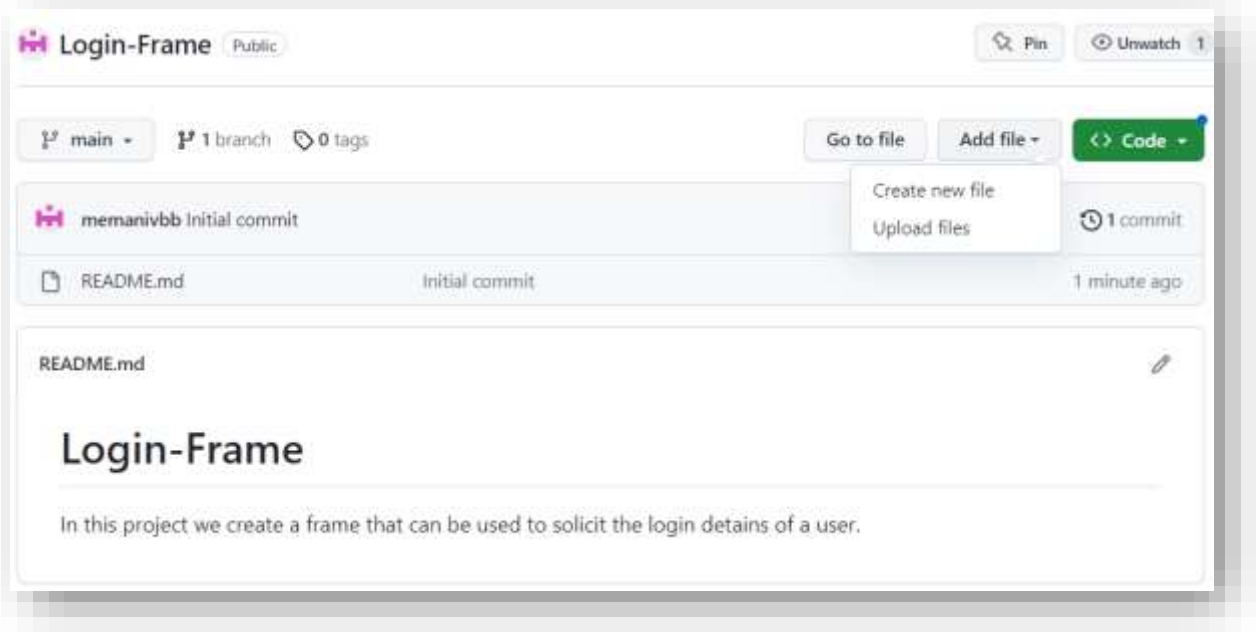
Step 5

Click on **Create repository**.



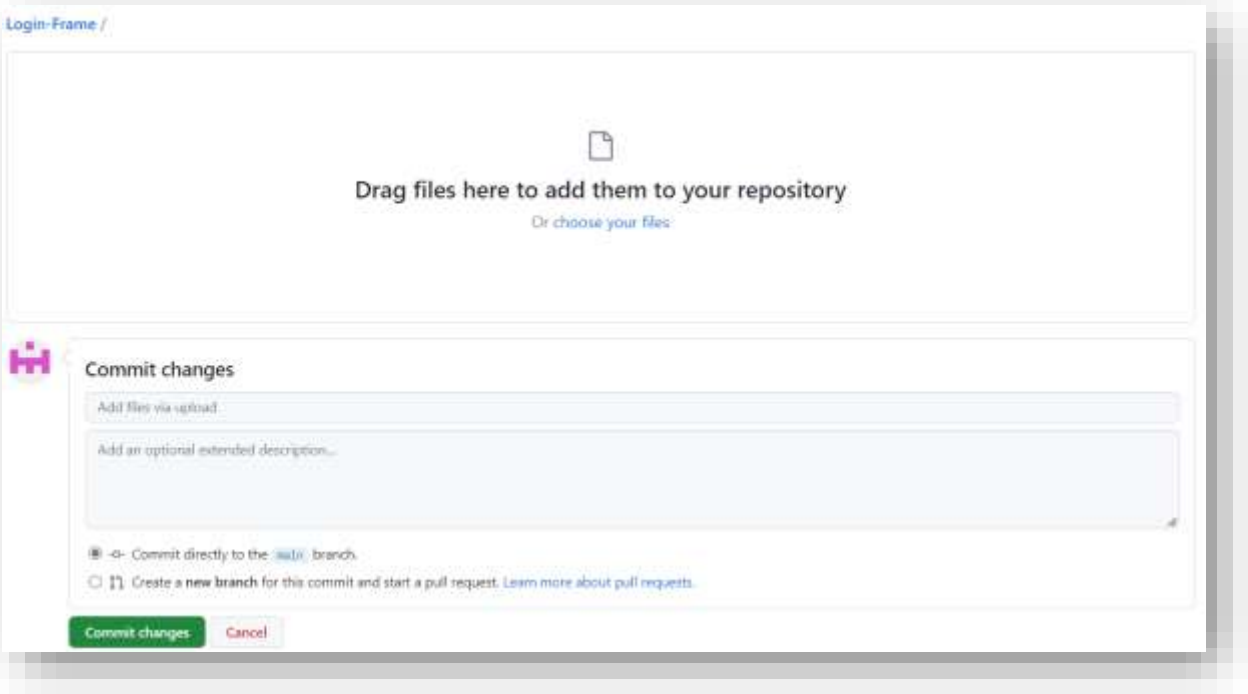
Step 6

Click on the **Add file** dropdown menu.



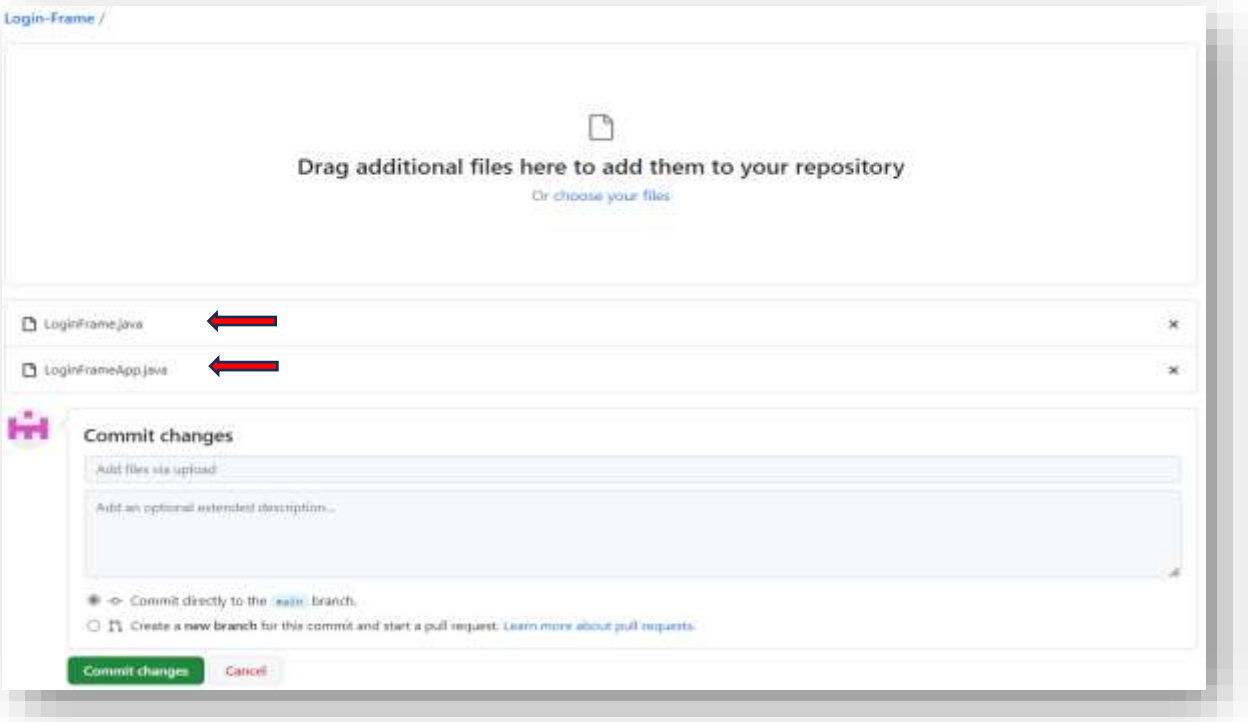
Step 7

Select the **Upload files** option.



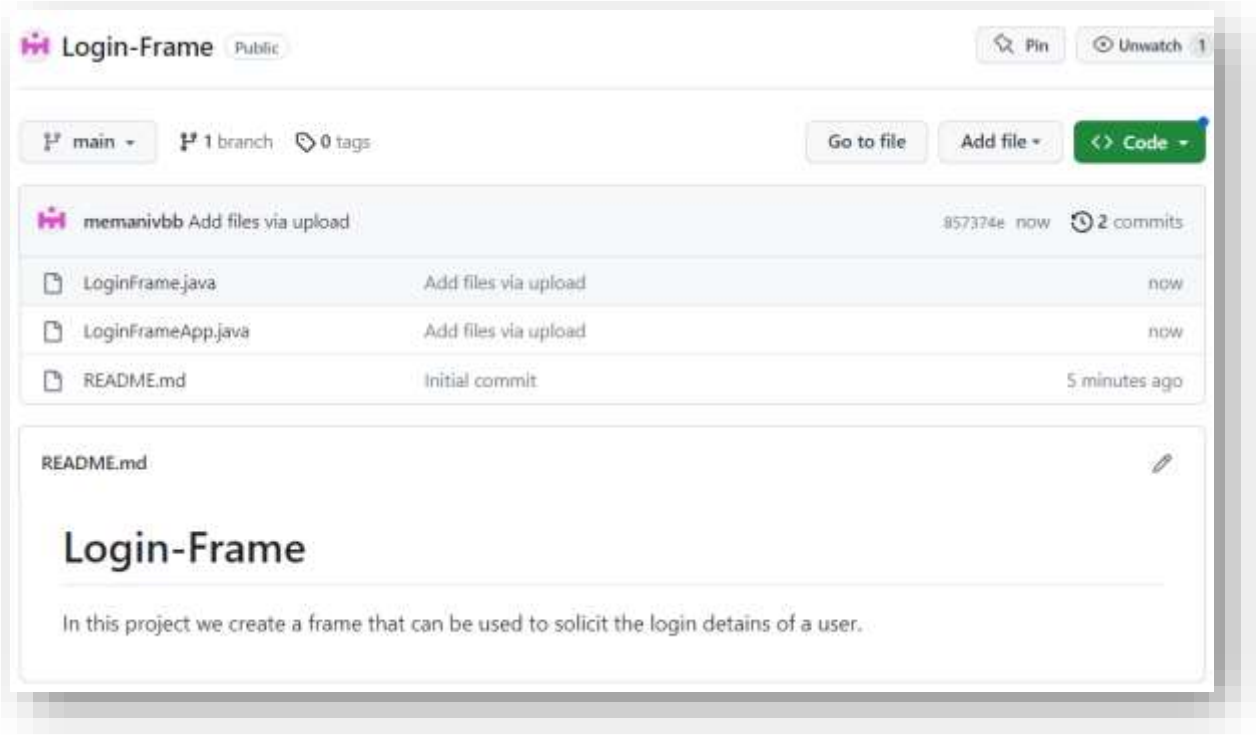
Step 8

Upload the files (**LoginFrame.java** and **LoginFrameApp.java**) by clicking on the link: **choose your files**.



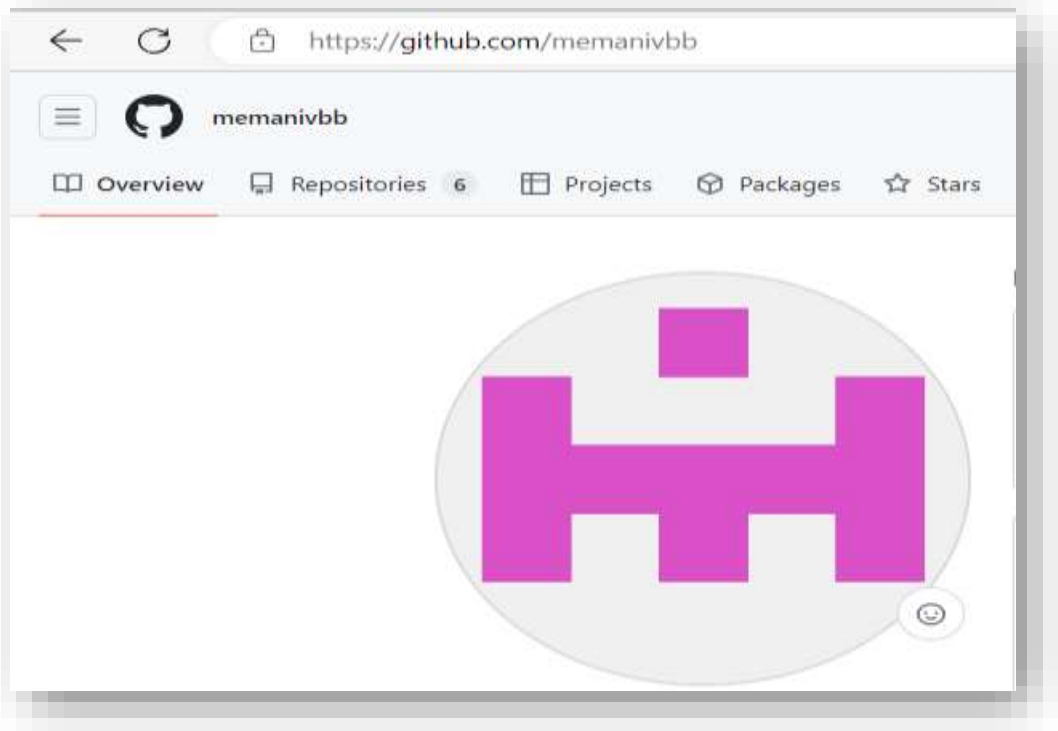
Step 9

Click on the **Commit changes** button.



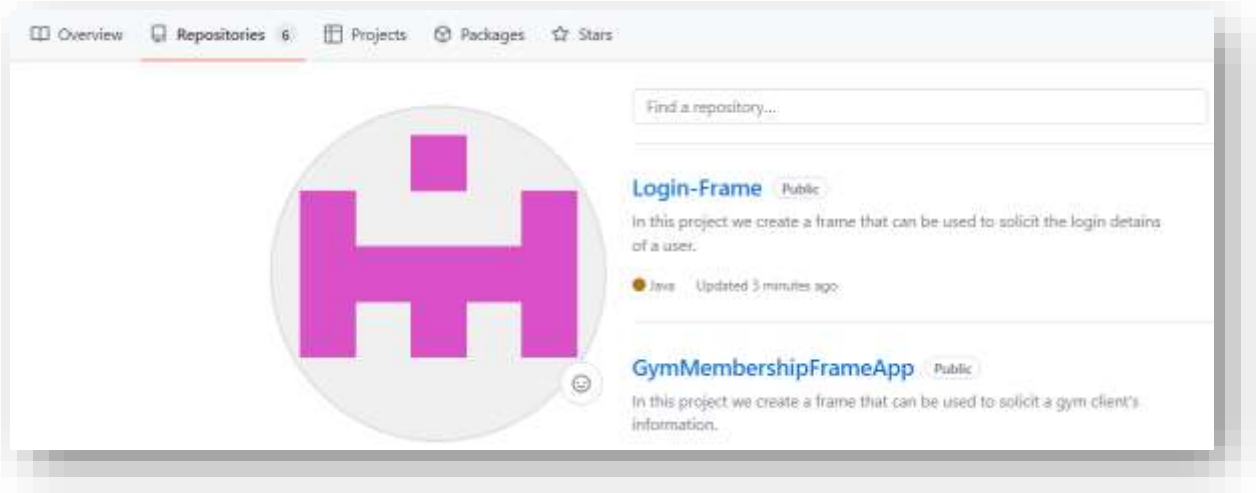
Step 10

Go back to the main page.



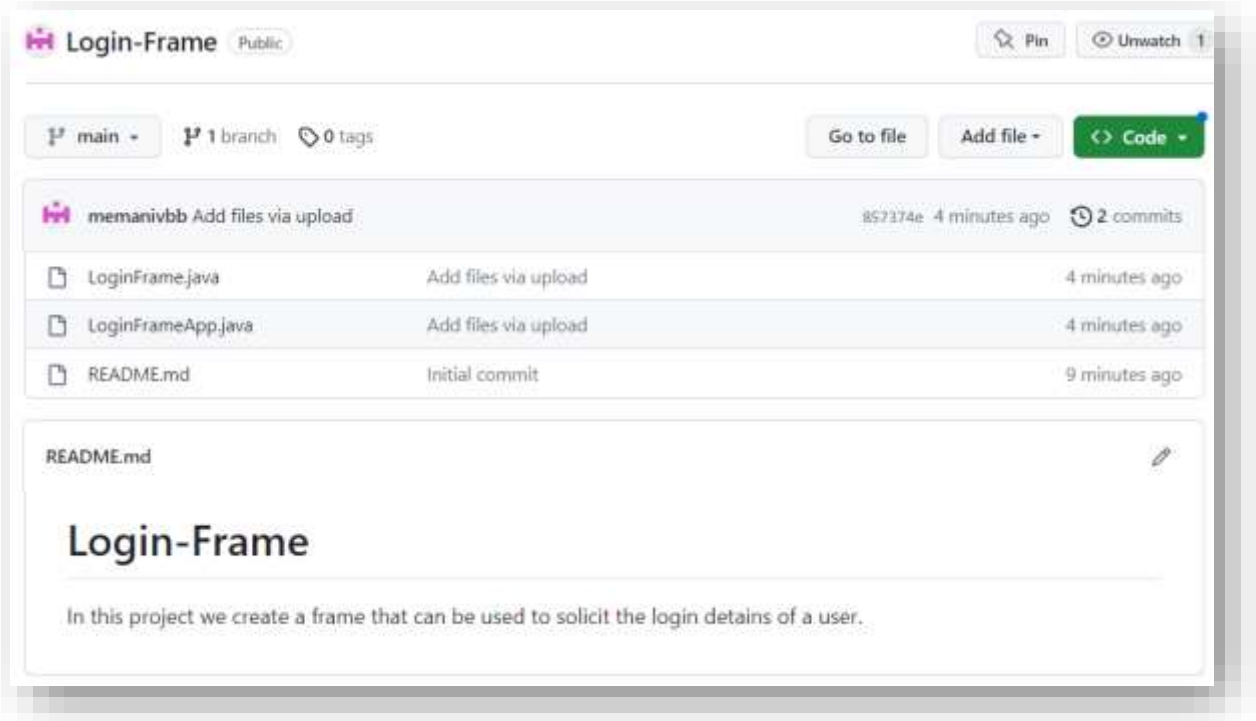
Step 11

Click on **Repositories.**



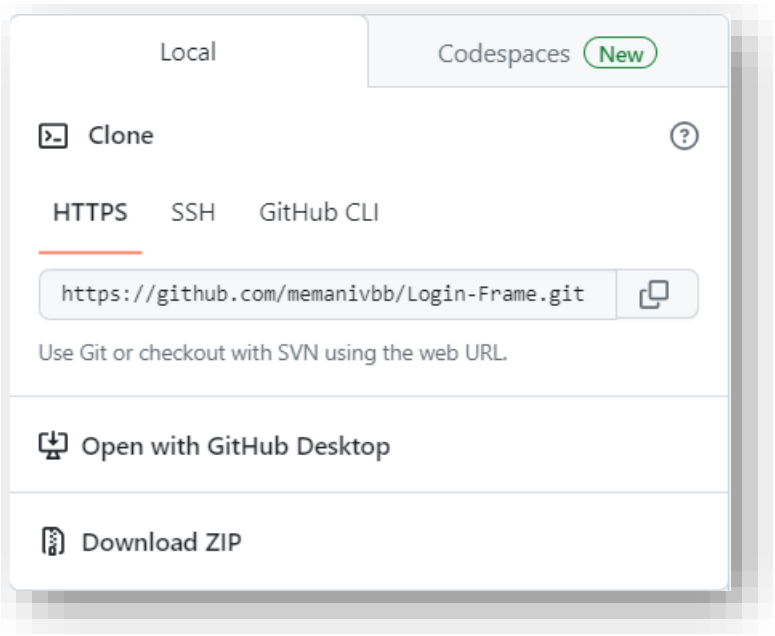
Step 12

Click on the **Login-Frame** project link.



Step 13

Click on **Code** dropdown menu.



Step 14

Copy the repository's link by clicking on the corresponding icon  . View the link (paste it here).

https://github.com/memanivbb/Login-Frame.git

You can share this link with anyone you want to access your repository.

Conclusion

In this Mrabulo Session we managed to do three things, namely:

1. Created a frame in a backend class.
2. Tested the frame in a frontend class.
3. Uploaded our source code on GitHub.

Please do the DIY exercise below to test your knowledge. Thank you very much for having taken time to do the tutorial. Enjoy the rest of your day and God bless you.

DIY

Create a login frame that will allow users to enter authentication information. The frame should resemble the form below: