



Final Exam

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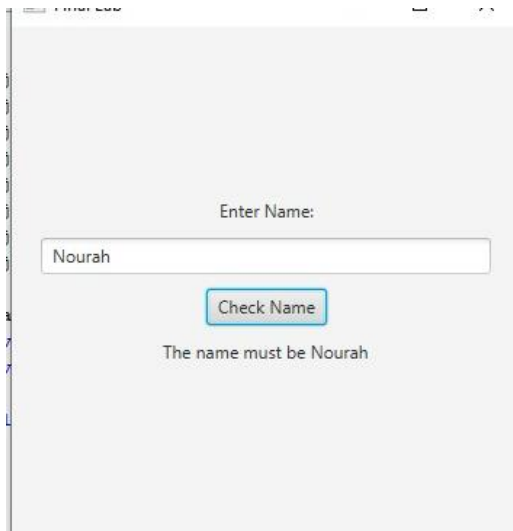
## Task1:

```
1 package com.myproject.NourahFinalLab;
2
3 import javafx.application.Application;
4 import javafx.application.Platform;
5 import javafx.scene.Scene;
6 import javafx.scene.control.Button;
7 import javafx.scene.control.Label;
8 import javafx.scene.control.TextField;
9 import javafx.scene.layout.VBox;
10 import javafx.stage.Stage;
11
12 class NameThread extends Thread {
13     private String name;
14     private Label outLabel;
15
16     public NameThread(String name, Label outLabel) {
17         this.name = name;
18         this.outLabel = outLabel;
19     }
20
21     @Override
22     public void run() {
23         Platform.runLater(() -> {
24             String low = name.toLowerCase();
25
26             if (low.equals("Nourah")) {
27                 outLabel.setText(name);
28             } else {
29                 outLabel.setText("The name must be Nourah");
30             }
31         });
32     }
33 }
34
35 public class Main extends Application {
36     @Override
37     public void start(Stage primaryStage) throws InterruptedException {
38         Label nameLabel = new Label("Enter Name:");
39         TextField nameField = new TextField();
40         Button startButton = new Button("Check Name");
41         Label outputLabel = new Label();
42
43         final int[] clickCount = {0};
44
45         startButton.setOnAction(event -> {
46             String name;
47             name = nameField.getText();
48
49             if (clickCount[0] % 2 == 0) {
50                 NameThread nameThread = new NameThread(name, outputLabel);
51                 nameThread.start();
52             } else {
53                 SecondCharThread classifyChar = new SecondCharThread(name, outputLabel);
54                 classifyChar.start();
55             }
56
57             clickCount[0]++;
58         });
59
60         VBox layout = new VBox(10, nameLabel, nameField, startButton, outputLabel);
61         layout.setStyle("-fx-padding: 20px; -fx-alignment: center;");
62
63         Scene scene = new Scene(layout, 350, 350);
64         primaryStage.setTitle("Nourah Final Lab");
65     }
66 }
```

```

53         SecondCharThread classifyChar = new SecondCharThread(name, outputLabel);
54         classifyChar.start();
55     }
56
57     clickCount[0]++;
58 });
59
60 VBox layout = new VBox(10, nameLabel, nameField, startButton, outputLabel);
61 layout.setStyle("-fx-padding: 20px; -fx-alignment: center;");
62
63 Scene scene = new Scene(layout, 350, 350);
64 primaryStage.setTitle("Final Lab");
65 primaryStage.setScene(scene);
66 primaryStage.show();
67 }
68
69 public static void main(String[] args) {
70     launch(args);
71 }
72 }
73

```



## Task2

```
1  package org.example;
2  import java.util.Scanner;
3
4  class SharedResource {
5      private int count = 0;
6
7      public synchronized void increment(int value) {
8          this.count += value;
9      }
10
11     public synchronized int getCount() {
12         return count;
13     }
14 }
15
16 class CheckIDTask implements Runnable {
17     private SharedResource resource;
18     private String id;
19
20     public CheckIDTask(SharedResource resource, String id) {
21         this.resource = resource;
22         this.id = id;
23     }
24
25     @Override
26     public void run() {
27         for (char digit : id.toCharArray()) {
28             switch (digit) {
29                 case '8':
30                     resource.increment(15);
31                     break;
32                 case '6':
33                     resource.increment(10);
34                     break;
35                 case '5':
36                     resource.increment(5);
37                     break;
38             }
39         }
40     }
41 }
42
43 public class Main {
44     public static void main(String[] args) throws InterruptedException {
45         SharedResource resource = new SharedResource();
46         Scanner scanner = new Scanner(System.in);
47         System.out.print("Enter your ID: ");
48         String id = scanner.nextLine();
49
50         Runnable task1 = new CheckIDTask(resource, id);
51         Runnable task2 = new CheckIDTask(resource, id);
52         Runnable task3 = new CheckIDTask(resource, id);
53
54         Thread t1 = new Thread(task1);
55         Thread t2 = new Thread(task2);
56         Thread t3 = new Thread(task3);
57
58         t1.start();
59         t2.start();
60         t3.start();
61
62         t1.join();
63     }
```



### Task3

```
1 public class FinalLab {
2     public static void main(String[] args) {
3         System.out.println("Nourah answered the question");
4     }
5 }
```

MainExtends (jfxsa-run) x final\_lab (run-single) x

Created dir: C:\Users\vip\Documents\NetBeansProjects\final\_lab\build\classes  
Created dir: C:\Users\vip\Documents\NetBeansProjects\final\_lab\build\empty  
Created dir: C:\Users\vip\Documents\NetBeansProjects\final\_lab\build\generated-sources\ap-source-output  
Compiling 1 source file to C:\Users\vip\Documents\NetBeansProjects\final\_lab\build\classes  
compile-single:  
run-single:  
Nourah answered the question  
BUILD SUCCESSFUL (total time: 0 seconds)  
تنشيط  
انقل إلى الإعدادات لتنشيط Windows

#### Task 4