**DIGITAL ASSIGNMENT:**

**JAVA FX APPLICATION PROJECT:**

**TEAM MEMBERS:**

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**COMPLETE SOURCE CODE:**

**package** sample;  
  
**import** javafx.application.Application;  
**import** javafx.geometry.Insets;  
**import** javafx.scene.Node;  
**import** javafx.scene.Scene;  
**import** javafx.scene.control.\*;  
**import** javafx.scene.layout.BorderPane;  
**import** javafx.scene.control.Button;  
**import** javafx.scene.Group;  
**import** javafx.scene.layout.GridPane;  
**import** javafx.scene.layout.HBox;  
**import** javafx.scene.text.Font;  
**import** javafx.scene.text.FontPosture;  
**import** javafx.scene.text.FontWeight;  
**import** javafx.scene.text.Text;  
**import** javafx.stage.Stage;  
**import** javafx.scene.layout.StackPane;  
  
**import** java.util.ArrayList;  
  
**public class** Main **extends** Application {  
  
 Stage **window**;  
 BorderPane **layout**;  
 Text **text** = **new** Text();  
  
 **public static void** main(String[] args)  
 {  
 *launch*(args);  
 }  
  
 @Override  
 **public void** start(Stage primaryStage) **throws** Exception {  
 **window** = primaryStage;  
 **window**.setTitle(**"VIT Grade Calculator Portal"**);  
 **text**.setText(**"Welcome to the VIT Grade Calculator portal"**);  
 **text**.setX(400);  
 **text**.setY(250);  
 Group root = **new** Group(**text**);  
  
 *//File menu* Menu fileMenu = **new** Menu(**"Start Menu"**);  
 MenuItem newFile = **new** MenuItem(**"New..."**);  
 newFile.setOnAction(e -> {  
  
 GridPane pane = **new** GridPane();  
 ScrollPane scroll = **new** ScrollPane(pane);  
 scroll.setVbarPolicy(ScrollPane.ScrollBarPolicy.***AS\_NEEDED***);  
 scroll.setHbarPolicy(ScrollPane.ScrollBarPolicy.***AS\_NEEDED***);  
  
 pane.setStyle(**"-fx-background-color: lightblue;"**); *// Background color* pane.setHgap(10); *// Horizontal gap* pane.setVgap(10); *// Vertical gap* pane.setPadding(**new** Insets(10, 10, 10, 10));  
  
 *// Create and add title* Label nameLabel = **new** Label(**"Assignment"**);  
 nameLabel.setFont(Font.*font*(**"Verdana"**, FontWeight.***BOLD***,  
 15));  
 pane.add(nameLabel, 0, 0);  
  
 Label gradeLabel = **new** Label(**"My Score"**);  
 gradeLabel.setFont(Font.*font*(**"Verdana"**, FontWeight.***BOLD***,  
 15));  
 pane.add(gradeLabel, 1, 0);  
  
 Label scoreLabel = **new** Label(**"Full Score"**);  
 scoreLabel.setFont(Font.*font*(**"Verdana"**, FontWeight.***BOLD***,  
 15));  
 pane.add(scoreLabel, 2, 0);  
  
  
 Label weightLabel = **new** Label(**"% of Grade"**);  
 weightLabel.setFont(Font.*font*(**"Verdana"**, FontWeight.***BOLD***,  
 15));  
 pane.add(weightLabel, 3, 0);  
  
 **int** num\_assignments = 7;  
 *// Create and add grade fields* **for** (**int** i = 1; i <num\_assignments; i++) {  
 **if**(i == 1) pane.add( **new** Label (i + **" CAT1 (50): "**), 0, i);  
 **if**(i == 2) pane.add( **new** Label (i + **" CAT2 (50): "**), 0, i);  
 **if**(i == 3) pane.add( **new** Label (i + **" DA1 (10): "**), 0, i);  
 **if**(i == 4) pane.add( **new** Label (i + **" QUIZ1 (10): "**), 0, i);  
 **if**(i == 5) pane.add( **new** Label (i + **" QUIZ1 (10) : "**), 0, i);  
 **if**(i == 6) pane.add( **new** Label (i + **" FAT (100): "**), 0, i);  
 *//pane.add( new Label (""+i), 0, i);* pane.add( **new** TextField(), 1, i);  
 pane.add( **new** TextField(), 2, i);  
 pane.add( **new** TextField(), 3, i);  
 }  
  
 Button addAssignment = **new** Button(**"+"**);  
 Button calculate = **new** Button(**"Calculate"**);  
 *//Button needButton = new Button(":");* TextField Gradeacq = **new** TextField();  
 Text Konsagrade = **new** Text();  
 Konsagrade.setText(**" Grade Acquired"**);  
 TextField result = **new** TextField();  
  
 pane.add(addAssignment, 0, num\_assignments);  
 pane.add(calculate, 1, num\_assignments);  
  
  
 pane.add(result, 3, num\_assignments);  
 pane.add(Gradeacq, 4, num\_assignments);  
 pane.add(Konsagrade,4,num\_assignments-1);  
 *// Create and register add assignment button handler* addAssignment.setOnAction(ee -> {  
  
 *// Move buttons* **int** row = pane.*getRowIndex*(addAssignment) + 1;  
  
 pane.getChildren().remove(addAssignment);  
 pane.getChildren().remove(calculate);  
 *//pane.getChildren().remove(needBox);* pane.getChildren().remove(result);  
  
 pane.add(addAssignment, 0, row);  
 pane.add(calculate, 1, row);  
 *//pane.add(needBox, 2, row);* pane.add(result, 3, row);  
  
 *// Add new row of text fields* row--;  
 pane.add( **new** Label (**""**+row), 0, row);  
 pane.add( **new** TextField(), 1, row);  
 pane.add( **new** TextField(), 2, row);  
 pane.add( **new** TextField(), 3, row);  
  
 });  
  
  
 calculate.setOnAction(ee -> {  
 ArrayList<Double> scores = **new** ArrayList<Double>();  
 ArrayList<Double> percents = **new** ArrayList<Double>();  
 **boolean** bool = **false**;  
  
 *// Reaccess grade fields* **for** (Node node: pane.getChildren()) {  
 **if** (node **instanceof** TextField) {  
 **try** {  
 Double doub = Double.*parseDouble*(((TextField)node).getText());  
 **if** (pane.*getColumnIndex*(node) == 1) {  
 scores.add(doub);  
 bool = **true**;  
 }  
 **else if** (bool && pane.*getColumnIndex*(node) == 2) {  
 Double newScore = scores.get(scores.size()-1)/doub;  
 scores.set(scores.size()-1, newScore);  
 bool = **false**;  
 }  
 **else** {  
 percents.add(doub);  
 bool = **false**;  
 }  
 } **catch** (NumberFormatException ex) {  
 *//skip* }  
 }  
 }  
  
 *// Calculate grade* **double** grade = 0;  
 **double** percentTotal = 0;  
  
 **int** min = scores.size();  
 **if** (min > percents.size())  
 min = percents.size();  
  
 **for** (**int** i = 0; i < min; i++) {  
 grade = scores.get(i) \* percents.get(i) + grade;  
 percentTotal = percentTotal + percents.get(i);  
 }  
 result.clear();  
 grade = 100\*(grade/percentTotal);  
 result.appendText(grade+**"%"**);  
  
  
 String gg = **"2"**;  
 grade = (**int**)grade;  
 **if**(grade >90) {  
 gg = **"S"**;  
 }**else if**(grade >80) {  
 gg = **"A"**;  
 }**else if**(grade >70) {  
 gg = **"B"**;  
 }**else if**(grade >60) {  
 gg = **"C"**;  
 }**else if**(grade >50) {  
 gg = **"D"**;  
 }**else** {  
 gg = **"F"**;  
 }  
 Gradeacq.clear();  
 Gradeacq.appendText(**"GRADE : "** + gg);  
 });  
  
 Button Exit = **new** Button(**"Exit the program "**);  
 Exit.setOnAction(t -> {  
  
 System.*exit*(0);  
 });  
 pane.add(Exit, 4, 1);  
 *// Create a scene and place it in the stage* Scene scene = **new** Scene(scroll);  
 primaryStage.setTitle(**"VIT Grade Calculator"**); *// Set the stage title* primaryStage.setScene(scene); *// Place the scene in the stage* primaryStage.show(); *// Display the stage* scroll.requestFocus();  
 System.***out***.println(**"Start a new Calculation"**);  
  
 });  
 fileMenu.getItems().add(newFile);  
 MenuItem exit = **new** MenuItem(**"Exit"**);  
 fileMenu.getItems().add(exit);  
 exit.setOnAction(t -> {  
 System.*exit*(0);  
 });  
 MenuItem open = **new** MenuItem(**"Open"**);  
 Text portal = **new** Text(**"Portal is already Open"**);  
 portal.setFont(Font.*font*(**"Verdana"**,15));  
  
 open.setOnAction(l -> **layout**.setCenter(portal));  
 fileMenu.getItems().add(open);  
 *//fileMenu.getItems().add(new MenuItem("Open..."));  
 // fileMenu.getItems().add(new MenuItem("Save..."));* fileMenu.getItems().add(**new** SeparatorMenuItem());  
 fileMenu.getItems().add(**new** MenuItem(**"Settings..."**));  
 fileMenu.getItems().add(**new** SeparatorMenuItem());  
  
  
 *//Help menu* Menu helpMenu = **new** Menu(**"Help"**);  
 MenuItem HELP = **new** MenuItem(**"New..."**);  
 helpMenu.getItems().add(HELP);  
 HELP.setOnAction(e-> {  
  
 Text text = **new** Text();  
  
 *//Setting the text to be added.* text.setText(**"This grade calculator portal calculates the marks of all the subjects \n"** +  
 **" and calculates the grade you have obtained \n"** +  
 **"\* Click on the New Calculation Tab to start doing calculations. \n "** +  
 **"\* Click on exit to exit the portal."**);  
 text.setFont(Font.*font* (**"Verdana"**, 15));  
  
 **layout**.setCenter(text);  
 });  
  
  
 *//Main menu bar* MenuBar menuBar = **new** MenuBar();  
 menuBar.getMenus().addAll(fileMenu, helpMenu);  
  
  
  
 **layout** = **new** BorderPane();  
 **layout**.setTop(menuBar);  
 Scene scene = **new** Scene(**layout**, 600, 400);  
  
  
 Text welcome = **new** Text();  
 **text**.setText(**"VIT - GRADE CALCULATOR PORTAL."**);  
 **text**.setFont(Font.*font* (**"Verdana"**, 26));  
 **layout**.setCenter(**text**);  
 **layout**.setStyle(**"-fx-background-color: lightblue;"**);  
 **window**.setScene(scene);  
 **window**.show();  
 }  
  
}

**OUTPUT SCREENSHOTS:**

1. **Home Page**

**![A screenshot of a cell phone

Description automatically generated]()**

1. **Grade Calculation Page: (After clicking new)**

![A screenshot of a cell phone

Description automatically generated]()

**Ex for “A” grade :**

**![A screenshot of a cell phone

Description automatically generated]()**

**Ex for “B” grade**

**![A screenshot of a cell phone

Description automatically generated]()**

**Ex for “S” grade**

**![A screenshot of a cell phone

Description automatically generated]()**

1. **Clicking on the help :![A screenshot of a cell phone

   Description automatically generated]()**
2. **Clicking on open portal :**

![A screenshot of a cell phone

Description automatically generated]()