Assignment - 04

* Title: GUI Programming using Swing.

* Problem Statement: Transform the system from command line system to GUI Based Application.

* Objective: Understand the implementation of the swing class.

* Outcome: Students will be able to evaluate and analyze the problem and understand the GUI concepts of Java.

* Software and Hardware Requirements:
    Windows 10 (64 bit), Java Development kit (JDK), JDE (IntelliJ), Intel i5 processor, 4GB RAM.

* Concepts Related Theory:
    Java Swing:
        Java Swing is a part of Java foundation classes (JFC) that is used to create window based applications. It is built on the top of AWT (Abstract Windowing Toolkit) API and entirely written in Java.

        The Java Swing package provides classes for JAVA Swing API such as JButton, JTextField, JText-Area, JRadioButton, JCheckBox, JMenu, etc.

Difference between AWT and Swing

Java AWT	Java Swing
i) Platform dependent	Platform independent
ii) Heavy weight	light weight
iii) Does not support plugable look feel	Supports pluggable look and feel
iv) Less components than swing	more powerful components
v) Doesn't follow MVC (Model View Controller)	follows MVC

All components in swing are J components which can be added to container classes.

container classes:

Container classes are classes that can have other components on it. So for creating a GUI, we need atleast one container object.

Three types of containers:
i) Panel
ii) Frame
iii) Dialog

Java Swing class hierarchy diagram:

Object		JText	JTextField
			JTextArea
Component		JComboBox	
Container		JLabel	
Window	JComponent	JList	
frame	Dialog	JMenuBar	
JFrame	JDialog	JPanel	
		JScrollBar	
		Abstract	JButton.

Java JLabel: The object of JLabel class is a component for a single text in a container. It is used to display a single line of read only text. The text can be changed by an application but a user cannot edit it.

Java JTextArea: The object of a JTextArea class is a multiline region that displays text. It allows the editing of multiple line text. It inherits text component class.

Java JCheckBox:
The JCheckBox class is used to create a checkbox. It is used to turn an option on or off (i.e. true or false). It inherits JToggle Box class.

Java JRadio Button:
The JRadioButton class is used to create a radio button. It is used to choose one option from multiple options. It is widely used in exam systems or quiz.

* Result :- All the test cases yielded the result 'PASS' and the GUI application was built successfully.

* Conclusion :
After successfully computing this assignment we are able to develop an application using Swing which is user friendly.