



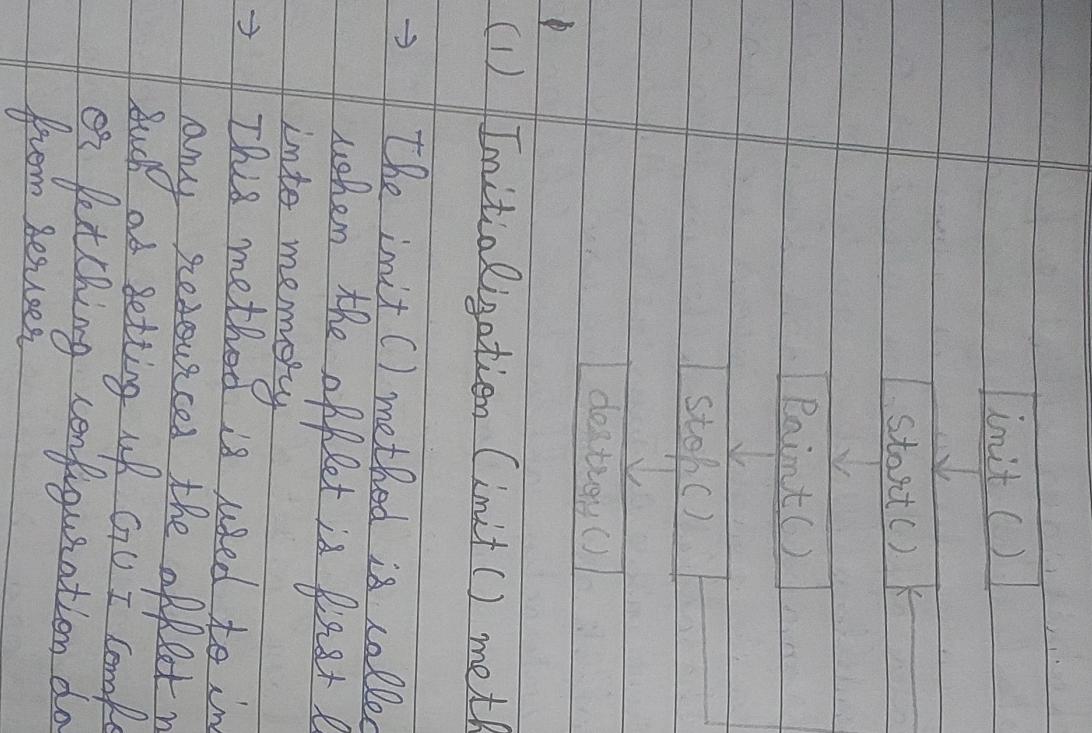
Q4 What is Java Applet? Explain in detail what is life cycle of Java Applet.

Java Applet A Java applet is a small application written in Java programming language that is designed to be embedded into a web page.

- The applet is written in Java and run inside a Java Virtual Machine (JVM).
- Applets are primarily used building interactive applications like games and animations.

Life Cycle of Java Applet The life cycle of Java applet is defined by a set of methods called by browser or applet viewer at different stages of its execution.

- These methods are responsible for initializing, starting, pausing and stopping the applet.



(2) Starting (start() method)

The start() method is invoked after init(). It is called every time applet is displayed.
 If applet applet is paused or stopped, start() will be called again when user navigates back to the page.

(3) Painting (paint() method)

- (1) Initialization (init() method)
 - The init() method is called whenever the applet needs to be redrawn, such as when it is first displayed, resized, or when it regains focus.
 - This method is used to initialize any resources the applet needs, such as setting up GUI component or fetching configuration data from server.
- The paint() method is often called by browser when applet needs to be updated.



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→ Stopping (stop() method)
The stop() method is invoked when the applet is no longer visible (e.g. when the user navigates away from the page or applet is being hidden).

The method is used pause or stop any ongoing activity, such as stopping animation or halting threads to free up some resources.

5
Destroying (destroy() method)
The destroy() method is called when the applet is about to be unloaded from memory, typically when browser session ends.
→ This method is used to release any resources or perform cleanup such as closing files, releasing memory or shutting network connections.

```
public void stop() {
    // Stop running thread
    Thread stop(); }
```

```
public void destroy() {
    // destroy the applet
    thread = null; }
```

Java program to draw a smiley face using applet.



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```
import java.awt.*;  
import java.awt.event.*;  
import java.awt.swing.*;
```

```
f. setSize(400, 400);  
f. setvisible(true);
```

```
public class Assignment4 extends
```

```
Afflet {
```

```
public void paint(Graphics g){
```

```
g. setcolor(Color.Yellow);
```

```
g. setcolor(Color.Black);
```

```
g. filloval(50, 100, 200, 200);
```

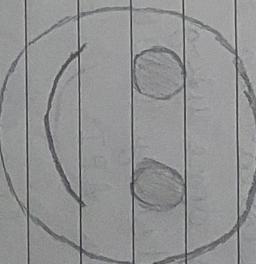
```
g. filloval(100, 150, 30, 30);
```

```
g. drawarc(100, 200, 100, 50,
```

```
0, -180);
```

```
}
```

OUTPUT

 Smiley face drawing by 22EATRCS114 - □ X

```
JFrame f = new JFrame("Smile");  
f.setVisible(true);  
Assignment4 afflet = new
```

```
f. add(afflet); Assignment4
```



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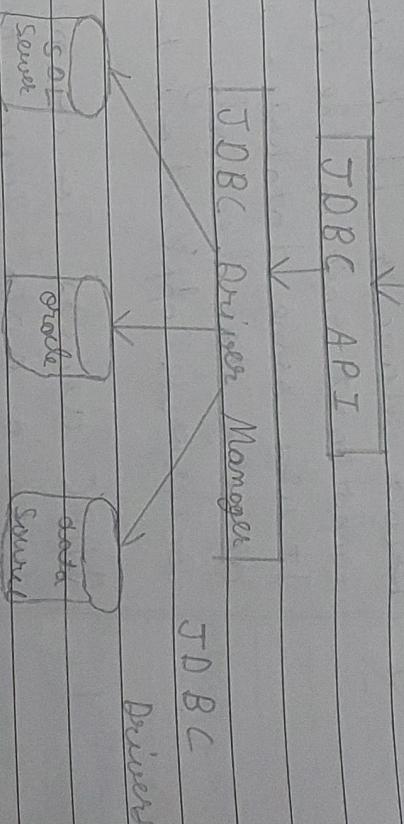
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- Q 5
What is Java Database programming?
Explain architecture of Java database programming with example.

Java Database Programming refers to the process of using Java programming language to interact with databases, allowing Java applications to connect to, query, update, and manage data stored in relational databases. This is done using Java Database Connectivity (JDBC), which is Standard API.

Key concept of java database programming



- JDBC (Java database connectivity) JDBC is an API that enables Java application with database.
- SQL (Structure query language) SQL is the language to communicate with relational database.

- The JDBC API The JDBC API allows Java program to execute SQL statements and retrieve results.
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Some of the important interfaces defined in JDBC API are as follows : Driver interface, resultSet interface etc

3 Driver Manager It plays an important role in the JDBC architecture

It uses some database - specific drivers to effectively connect enterprise applications to databases.

4 JDBC drivers To communicate with a data source through JDBC you need a JDBC driver that intelligently communicates with respective data source .

1/ Java program to Show database connectivity
Import java.sql.*;
import java.util.*;

public class Assignment 5 {

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```
public static void main(String[] args) {
    String url = "jdbc:mysql://localhost:3306/demo";
    String username = "root";
    String password = "1234";
    String query = "SELECT * FROM user";
    try {
        Connection con = DriverManager.getConnection(url, username, password);
        Statement stmt = con.createStatement();
        ResultSet rs = stmt.executeQuery(query);
        StringBuilder output = new StringBuilder();
        while (rs.next()) {
            output.append(rs.getInt("id") + " " +
                         rs.getString("Name") + " " +
                         rs.getString("Email") + "\n");
        }
        System.out.println(output);
    } catch (Exception e) {
        e.printStackTrace();
    }
}
```

Output : offload ("10)t Name1t Email1n")

offload ("1t 1t")

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```
output.append(rs.getString("email"))
append("\n");
}
ta.setText(output.toString());
} catch (SQLException e) {
ta.setText("Error : " + e.getMessage());
f.setEditable(true);
f.setSize(400, 300);
f.setVisible(true);
}
```

OUTPUT

Database connectivity by ZEAPCSH - X

ID	Name	Email
1	Niraj	niraj@mail.com
2	Amit	amit@mail.com