12. Creating an Application in Salesforce.com Using Apex Programming Language

Display Multiplication Table of 5

- Step 1: Log in to Salesforce

Visit https://login.salesforce.com

Enter your username and password

Click Log In

- Step 2: Open Developer Console

Click the gear icon (⚙️) in the top-right corner

Select Developer Console

- Step 3: Create a New Apex Class

In Developer Console: File > New > Apex Class

Name the class: MultiplesOfFive

Paste the following code:

```
public class MultiplesOfFive {

    // Method to display the multiplication table of 5
    public static void displayTable() {
        for (Integer i = 1; i <= 10; i++) {
            Integer result = 5 * i;
            System.debug('5 x ' + i + ' = ' + result);
```

```
        }
    }

}
```

Click OK to save

- Step 4: Run Code Using Execute Anonymous Window

In Developer Console: Debug > Open Execute Anonymous Window

Paste this test code:

```
MultiplesOfFive.displayTable();
```

Click Execute

- Step 5: View the Output

Open the Logs tab in Developer Console

Double-click the most recent log entry

Search for lines like:

```
USER_DEBUG [5]|DEBUG|5 x 1 = 5
USER_DEBUG [5]|DEBUG|5 x 2 = 10
```

...

USER_DEBUG [5]|DEBUG|5 x 10 = 50

Theory

- Apex Class:

```
public class MultiplesOfFive {

    // Method to display the multiplication table of 5
    public static void displayTable() {
        for (Integer i = 1; i <= 10; i++) {
            Integer result = 5 * i;
            System.debug('5 x ' + i + ' = ' + result);
        }
    }
}
```

- Execute Anonymous Code (to run and test the class):

```
MultiplesOfFive.displayTable();
```

📘 Detailed Line-by-Line Explanation

Line

Explanation

public class MultiplesOfFive

Declares a public class that contains the logic for generating the multiplication table of 5. Classes in Apex organize code logically.

public static void displayTable()

Defines a static method that generates and displays the table. It’s static, so it can be called without instantiating the class. The void return type indicates it doesn’t return a value.

for (Integer i = 1; i <= 10; i++)

A loop that iterates from 1 to 10 to calculate multiples of 5.

Integer result = 5 * i;

Calculates the product of 5 and the current loop index i.

System.debug('5 x ' + i + ' = ' + result);

Outputs each multiplication result to the Debug Logs in the format 5 x i = result.

💡 Theory for Viva – Apex, Salesforce, and Cloud

🔹 1. What is Salesforce?

Answer:Salesforce is a cloud-based CRM (Customer Relationship Management) platform that enables businesses to manage customer data, automate processes, and build custom applications using tools like Apex and low-code options.

- 2. What is Apex in Salesforce?

Answer:Apex is a strongly-typed, object-oriented programming language for Salesforce, syntactically similar to Java. It's used for custom business logic, triggers, web services, scheduled jobs, and controllers.

- 3. Where is Apex code executed?

Answer:Apex code is executed on Salesforce's multi-tenant cloud platform, known as the Lightning Platform (formerly Force.com), in a hosted environment.

- 4. How do you run Apex code?

Answer:Apex code can be executed via:

Execute Anonymous Window in Developer Console for testing.

Triggers for data-driven automation.

Classes and Methods for reusable logic.

Visualforce or Lightning Components for UI applications.

- 5. What is the Developer Console in Salesforce?

Answer:The Developer Console is a browser-based IDE in Salesforce for:

Writing and running Apex code.

Debugging with logs.

Executing SOQL queries.

Managing and running tests.

- 6. What are Static Methods in Apex?

Answer:Static methods:

Belong to the class, not an instance.

Can be called directly using ClassName.methodName().

Are ideal for utility functions, like generating the multiplication table in this example.

- 7. What is System.debug()?

Answer:System.debug() is used to:

Print output to the Debug Logs for testing and troubleshooting.

Display information visible only to developers, not end users.

- 8. What are some benefits of using Apex?

Seamless integration with Salesforce data (objects, fields).

Enforces security and governor limits.

Supports Lightning and Visualforce for UI development.

Enables complex business logic automation.

- 9. What are Governor Limits in Apex?

Answer:Governor Limits are Salesforce's restrictions to ensure fair resource usage in its multi-tenant environment, including:

CPU Time: Max 10,000 ms.

SOQL Queries: Max 100 per transaction.

DML Statements: Max 150 per transaction.

Heap Size: Max 6 MB.This multiplication table code is lightweight and well within these limits.

- 10. What is the Force.com Platform (Lightning Platform)?

Answer:The Lightning Platform is Salesforce’s PaaS layer, allowing:

Custom application development.

Business logic implementation using Apex.

UI creation with Visualforce or Lightning Components.

📌 Summary

Component

Description

Apex

Programming language for Salesforce platform.

Static Class Method

Generates and displays the multiplication table of 5.

System.debug()

Outputs results to Debug Logs for testing.

Developer Console

Tool for writing, running, and testing Apex code.

Salesforce Platform

Cloud-based CRM and app development platform.

🧭 Salesforce and Apex Concepts

🧠 1. What is Salesforce.com?

Salesforce.com is a cloud-based CRM platform providing:

SaaS: Ready-to-use apps like Sales Cloud and Service Cloud.

PaaS: Development tools via the Lightning Platform for custom applications.

🧠 2. What is Apex Programming?

Apex is:

A server-side, Java-like programming language for Salesforce.

Designed to interact with Salesforce data.

Used for custom logic, triggers, web services, scheduled tasks, and batch processing.

Compiled and executed in the Salesforce cloud.

🧰 3. Where is Apex Used in Salesforce?

Component

Purpose

Triggers

Automate data operations (insert, update, delete).

Classes & Methods

Reusable logic (e.g., MultiplesOfFive).

Web Services

Expose logic to external systems.

Scheduled Jobs

Execute tasks at specific times.

Batch Apex

Process large datasets.

Visualforce/Lightning

Backend logic for user interfaces.

🔗 4. How Does the Code Fit in Salesforce Architecture?

The MultiplesOfFive Apex class is:

Compiled and stored on Salesforce servers.

Executable via:

Developer Console's Execute Anonymous Window.

UI components (Visualforce or Lightning).

Automation tools (Flow, Process Builder, or REST API).

🛠️ 5. What Is the Developer Console?

The Developer Console is an in-browser IDE for:

Writing and executing Apex code.

Viewing Debug Logs.

Running SOQL queries.

Analyzing performance and running tests.

🔁 6. How Does Code Execute? (Lifecycle)

Write the Apex class (MultiplesOfFive).

Compile and save it to Salesforce's cloud.

Run the code via the Execute Anonymous Window.

Use System.debug() to output the multiplication table to the Debug Log.

View the results in the Logs tab.

📊 7. What is the Role of Static Methods in This Code?

Static methods:

Enable calling displayTable() without instantiating MultiplesOfFive.

Are memory-efficient for utility tasks like generating a multiplication table.

Simplify code reuse.

🔐 8. What are Governor Limits, and Why Do They Matter?

Governor Limits ensure fair resource usage in Salesforce's multi-tenant environment. Examples include:

DML Statements: Max 150 per transaction.

SOQL Queries: Max 100 per transaction.

Heap Size: Max 6 MB.

CPU Time: Max 10,000 ms.This multiplication table code is simple and stays within these limits.

⚙️ 9. Advantages of Using Apex

Deep integration with Salesforce data.

Built-in security (e.g., user and object-level permissions).

Native cloud execution with auto-scaling.

Compatibility with Salesforce features like Flows and Process Builder.

💡 10. How Can This Code Be Extended for Real-World Apps?

The MultiplesOfFive class can be extended to:

Display tables for user-specified numbers via Visualforce or Lightning forms.

Store results in a custom Salesforce object.

Run in a trigger to calculate multiples for field values.

Be exposed via a REST API for external applications.

Integrate with Flows for automated calculations.

🧪 Sample Viva Questions with Smart Answers

Question

Suggested Answer

What is Apex?

Apex is Salesforce's object-oriented programming language for custom logic, triggers, and automation.

Where can we run Apex code?

In triggers, classes, Developer Console, Visualforce, Lightning Components, or via APIs.

What is the platform on which Apex runs?

The Lightning Platform (formerly Force.com), Salesforce's PaaS for custom app development.

Why use static methods here?

Static methods simplify calling utility functions like the multiplication table without creating objects.

How does this code execute in Salesforce?

It’s compiled, stored in the Salesforce cloud, and executed on-demand via the Developer Console or other mechanisms.