Practical No.3

Title: Creating an application is salesforce.com using Apex programming language.

Objectives:
- To learn salesforce cloud administration.
- To create application is saleforce.com using Apex P.

Hardware Requirment: Pentium IV with ~~to~~ latst configuration.

Software Requirement: Ubuntu 20.04, web application i.e. Salesforce.com.

Theory:
What is Apex?

Apex is proprietary language developed by salesforce.com. As per official definition, Apex is a strongly typed, object-oriented programming language that allows developers to execute flow and transaction with calls to force.com API.

It has a Java-like syntax and acts like database stored procedures. It enables developers to add business logic to most system events, including button clicks, related record updates, and visual force pages. Apex is included in

performance Edition, Enterprise Edition and Developer edition.

Features of Apex as a language.

- Integrated : Apex has built in support for DML Operations like INSERT, UPDATE, DELETE and also DML Exception handling.
It has support for inline SOQL & SOSL query handling which returns set of objects records. We will study object SOQL, SOSL in detail in future chapters.

- Java like syntax and easy to use.
Apex is easy to use the syntax like Java. For ex, variable declaration, loop syntax and conditional statements.

- Strongly Integrated with Data
Apex is data focused and designed to execute multiple queries and DML statements together. It issues multiple transaction statements on Database.

- Strongly Typed
Apex is a strongly typed language. It uses direct reference to schema objects like object and any invalid reference quickly fails if it is deleted or if it is of wrong data type

• Multitenant Environment
Apex runs in a multitenant environment consequently. Apex runtime engine is designed to guard closely against runaway code, preventing it from monopolizing shared resources

• upgrades Automatically
Apex is upgraded as part of salesforce releases. We don't have to upgrade it manually

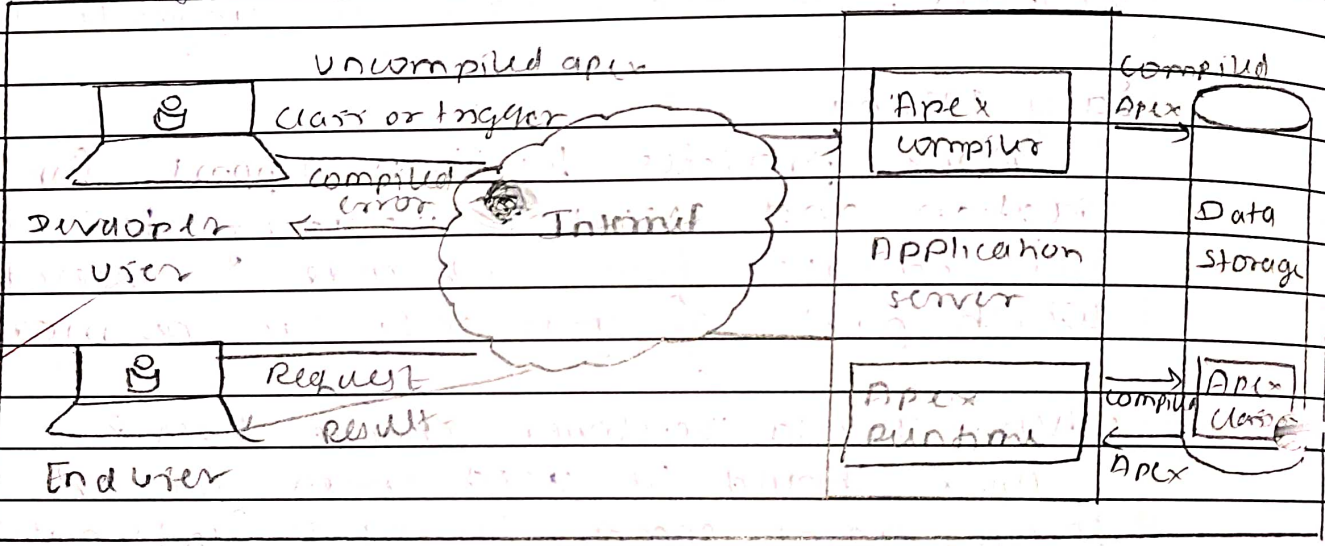
Easy Testing:
Apex provides built-in support for unit test creation and execution, including test results that indicate how much code is covered, & which parts of your code can be more efficient.

When should Developer choose Apex?
Apex should be used when we are not able to implement complex business functionality using pre-built and existing out of box functionalities.

Apex Applications:
We can use Apex when we want to:
• create web services with integrating other systems. create email services with for email blast or email setup.
• perform complex validation over multiple objects at same time and also custom validation implementation

- Create complex business processes that are not supported by existing workflow functionality or flows.
- Create custom transactional logic (logic that occurs over entire transaction, not just with single record).

Working structure of Apex



Flow of actions.

There are two sequence of actions when developers saves code and when an end user performs some action which invokes Apex code as shown.

Developer Actions

When a developer writes and saves Apex code to platform the platform application server first compiles code into a set of instructions that can be understood by Apex runtime interpreter, and then saves those instructions as metadata.

End User Action

When an end-user triggers execution of Apex by clicking a button or accessing a visual force page, platform application server retrieves compiled instructions from metadata and sends them through runtime interpreter before return results. Since Apex is properiatary language of salesforce.com, it does not support some features which a general programming language does. Following are the same features which Apex does not support:

- It cannot show elements in user Interface
- You cannot change standard SFDC provided functionality and also it is not possible to prevent standard functionality execution.

• Creating multiple threads is also not possible as we can do it in other langua

Understanding Apex syntax

Apex code typically contains many things that we might be familiar with from other programming languages.

Variable Declaration.

As strongly typed languages, you must declare every variable with data type in Apex. As seen in code below (as below). 1st Acc is declared with data types as list of Accounts.

SOQL Query.

This will be used to fetch data from Salesforce database. The query shown in screenshot below is fetching data from Account object.

loop statement.

This loop statement is used for iterating over a list or iterating over a piece of code for a specified numbers of times.

Flow control statement

The If statement is used for flow control in this code. Based on certain condition, it is decided whether to go for execution or to stop execution or to stop execution for of particular piece of code. For ex. in code, it is checking whether list is empty or it contains records.

DML statement.

Performs records insert, updata, insert, delete operation on records in database. For ex, the code given help in updating accounts with new field value.

Apex code Development Tools.

In all editions, we can use any of following three tools to develop code:

- force.com developer console.
- force.com IDE
- code Editor in Salesforce user interface.

Conclusion:

Thus we have created an application in Sales.force using apex programming language.