Package

- Pcakage is a folder
- Which consist of collection of inter-related class

Importing class

```
import packageName.*;               // Import All Classes
import packageName.className;       // Import A particular className class
```

Exception Handling

- try,catch(), & finally block is used for exception handling
- For checked exception we add $thorwsException$ with method defination
- For Uncheked exception, we need to use try,catch,exception block
- try must have either a cathc() or finally block to work.
- Generally we create a resouce in try block and close any resources in finally block
- But after java 1.7 we can use try(){} block where we create a resource inside the paranthesis of try block
  it automatically closes the resource rather than closing it in finally block.

MultiThreading

- Process of executing multiple thread simaltaneously/Parallely
- In java we use multi-threading not multiprocessing becuse multi-threading works on shared memory and saves time in context switching between threads.
- There is atleast on thread "main" in java
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Thread

- Unit of process
- A thread is a smallest unit of processing

Synchronization

- Whever working on shared data, the thread needs to be synchronised for correct operations.
- For synchronizing we create the method as synchronized using *synchronized* keyword.
- This is called making a method thread safe, where at a time only one thread can have access to a member (variable or methods).

Implementation of Multithreading

- Multithreading can be implemented in two ways:
  - By Extending $Thread$ class
  - By Implementing $Runnable$ interface
- Methods provided for MultiThreading in java
  - run
  - start
  - sleep
  - wait
  - notify
  - stop
  - join
  - isAlive

MultiThreading by extending Thread Class

- Here we extend Thread class and define run() method which implements the logic for what do do
- Then we create a refrence to Thread Class and object of the subclass.
- Then we start the execution by calling the object on strat() method.

MultiThreading by implementing Runnable interface

- Here we implement the Runnable interface
- Define the run() method
- Create reference of runnable and object of subclass.
- Create object of Thread and pass the obect of subclass created before.
- Then use the object of Thread to start the Thread execution by t1.start()

Advantages of multithreading

- Faster processing
- For asynchronous processing