Core Java

Unit III Packages and Revision

Packages

- Packages are Java’s way of grouping a variety of classes and /or interfaces together.
- **Benefits**
  - Reuse of Classes & Interfaces
  - Provides a way to “hide” classes thus preventing other programs or packages from accessing classes that are meant for internal use only.
  - Provides a way for separating “design ” and “coding ”.
  - Classes in two different packages can have the same name.

Java API Packages

Package	Contents
java.lang	Languages support classes. These are classes that Java compiler itself uses and therefore automatically imported. String, Math function, exception.
java.util	Languages utility classes such as vectors, hash tables, random numbers, date etc.
java.io	ip/op support classes.
java.awt	Set of classes for implementing user interface.
java.net	Include classes for communicating with local computer as well as with internet servers.
java.applet	Classes for creating and implementing applets.

Creating Packages

- Steps to create your own package
  1. Declare the package at the beginning of a file using the form

     package packagename;
  2. Define the class that is to be put in the package and declare it public.
  3. Create a subdirectory (with same name as package)under the directory where the main source files are stored.
  4. Store the listing as the classname.java file in the subdirectory created.
  5. Compile the file. This creates .class file in the subdirectory.

Example

```
package p1;
        public class B
         {
        //body of B
          }
```

Accessing a package

Syntax:

```
import package1[.package][.package3].classname;
```

Example:

```
import firstpackage.secondpackage.myclass;
```

OR

```
import packagename.*;
```

Hiding classes

- When we import a package using asterisk(*) all public classes are imported. However, we may prefer to "not import" certain classes.
- That is we want to hide these classes from accessing from outside of the package. Such classes should be declared "not public".

- **Example:**

```
 Package p1;

 Public class X
 {
                    //body of class X
  }
class Y
 {
                    //body of class Y
 }
```

Identify the output if no error found

```
class Base {
   public void show() {
     System.out.println("Base::show() called");
   }
}

class Derived extends Base {
   public void show() {
     System.out.println("Derived::show() called");
   }
}
public class Main {
   public static void main(String[] args) {
      Base b = new Derived();
      b.show();
   }
}
```

Output:-
Derived::show() called

```
class Base {
   public void show() {
     System.out.println("Base::show() called");
   }
}

class Derived extends Base {
   public void show() {
     System.out.println("Derived::show() called");
   }
}
public class Main {
   public static void main(String[] args) {
      Derived b = new Base();
      b.show();
   }
}
```

Compile Time Error

Identify the output

```
class Base {
   public static void show() {
     System.out.println("Base::show() called");
   }
}

class Derived extends Base {
   public static void show() {
     System.out.println("Derived::show() called");
   }
}

class Main {
   public static void main(String[] args) {
      Base b = new Derived();
      b.show();
   }
}
```

Output:-
Base::show() called

```
class A
 {    int i;   int j;
     A()
     {
        i = 1;  j = 2;
     }
 }
 class Output
 {
     public static void main(String args[])
     {
         A obj1 = new A();
         A obj2 = new A();
   System.out.print(obj1.equals(obj2));
     }
 }
```

Output:-
false

Time to Climb

- https://share.nearpod.com/IoXg86Qbfcb

Mini Project Topics

1. Pizza order form
2. Bus ticket reservation
3. Electricity /Telephone bill payment details
4. Hotel room booking form
5. Buy grocery items form
6. Simple car Sale System
7. Doctor Appointment Booking
8. Medicine order form
9. Vehicle Management Service
10. Bank Management System

11. Quiz System
12. Complaint Management System for college infrastructure
13. Library Management System
14. Car rental system
15. Tax calculation form
16. Home renting system
17. Food order system
18. Teachers Feedback Form
19. Venue Booking system
20. Hall Booking System

Thank You