

OOP Lab: Experiment 6

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Exercise 1: Write a Java program to implement the concept of importing classes from user defined package and created packages.

Code:

Arithmetics.java

```
package Mathematics;

public class Arithmetics{
    public int Add(int x, int y)
    {
        return x+y;
    }
}
```

Main.java

```
package Calculator;

import Mathematics.*;

public class Main{
    public static void main(String a[])
    {
        Arithmetics obj = new Arithmetics();
        System.out.println("5+9= " + obj.Add(5,9));
    }
}
```

Output:

```
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP\LAB\Experiment 6\Question1> javac -d . Arithmetics.java
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP\LAB\Experiment 6\Question1> javac -d . Main.java
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP\LAB\Experiment 6\Question1> java Calculator.Main
5+9= 14
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP\LAB\Experiment 6\Question1> █
```

Exercise 2: Write a program to make a package Balance. This has an Account class with Display_Balance method. Import Balance package in another program to access Display_Balance method of Account class.

Code:

Account.java

```
package Balance;

public class Account {
    public void Display_Balance(float x)
    {
        System.out.println("Balance: "+ (x*100));
    }
}
```

Main.java

```
package Company;
import Balance.*;
public class Main
{
    public static void main (String[] args)
    {
        Account obj = new Account();
        obj.Display_Balance(20);
    }
}
```

Output:

```
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP\LAB\Experiment 6\Question2> javac -d . Main.java
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP\LAB\Experiment 6\Question2> javac -d . Account.java
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP\LAB\Experiment 6\Question2> java Company.Main
Balance: 2000.0
```

Exercise 3: WAP to create a package p with class A with 4 types of access protected methods. How we will use these methods in different packages class i.e. there is main() in class B in package Q and 4 methods are in Class A in package p.

Code:

A.java

```
package p;

public class A
{
    public void Public()
    {
        System.out.println("Public!!\n");
    }
    void Default()
    {
        System.out.println("Default!!\n");
    }
    private void Private()
    {
        System.out.println("Private!!\n");
    }
    protected void Protected()
    {
        System.out.println("Protected!!\n");
    }
}
```

B.java

```
package Q;

import p.A;

public class B
{
    public static void main(String args[])
    {
        A obj = new A();
        obj.Public();
        //obj.Default(); -> Not Accessible
        //obj.Private(); -> Not Accessible
        //obj.Protected(); -> Not Accessible
    }
}
```

Output:

```
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs  
Public!!
```

```
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs
```

OUTPUT with Error- Default, Private and Protected methods are NOT accessible through package

```
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP\LAB\Experiment 6\Question3> javac -d . B.java  
B.java:11: error: Default() is not public in A; cannot be accessed from outside package  
    obj.Default(); //-> Not Accessible  
      ^  
B.java:12: error: Private() has private access in A  
    obj.Private(); //-> Not Accessible  
      ^  
B.java:13: error: Protected() has protected access in A  
    obj.Protected(); //-> Not Accessible  
      ^  
3 errors  
PS F:\UPES\Academics\2nd Year\3rd Semester\OOPs Theory\sem3-Java-OOP\LAB\Experiment 6\Question3> |
```

Exercise 3: WAP to create a package p with class A with 4 types of access protected methods. How we will use these methods in different packages class i.e. there is main() in class B in package Q and 4 methods are in Class A in package p.

Code:

Output: