Assignment no - II

Title - Interfaces and packages

Problem Statement - Write a Java program which wi
demonstrate a concept of interfaces and packages: In
this assignment design and use of customized
interfaces and packages for a specific application are exp

Objective - ① To understand use of interface
② To understand use of packages

Outcome - ① To be able to implement interface in java
② To be able to use packages for specific app.

Theory -

Interfaces -

An interface in java is a blueprint of a class. It has
static constants and abstract methods. The interface
in java is a mechanism to achieve abstraction.
There can be only abstract methods in the java
interface not method body An interface
declares methods but does not supply bodies
for them. It is used to achieve abstraction
and multiple inheritance in Java.

Example

```
Interface Resistance {
    public void keyPressed (KeyEvent e);
    public void keyReleased (KeyEvent e);
    public void keyTyped (KeyEvent e);
}
```

There are mainly three reasons to use interface.
① It is used to achieve abstraction
② By interface, we can support the functionality of multiple inheritance
③ It can be used to achieve loose coupling

An interface is a reference type in Java It is similar to class. It is a collection of abstract methods. A class implements an interface, thereby inheriting the abstract methods of the interface. Along with abstract method of the interface may also contain constants, default methods, static methods, and nested type. Unless the class that implements the interface is abstract, all the methods of the interface need to be defined in the class.

Interfaces have the following properties

① An interface is implicitly abstract. You do not need to use the abstract keyword while declaring an interface
② Each method in an interface it is also implicitly abstract, so the abstract keyword is not needed.
③ You cannot instantiate an interface
④ An interface may also contain constants (final variables)

Packages:-

A java package is a group of similar types of classes, interfaces and sub-packages. Packages in java can be categorized in two forms. built-in and user-defined packages. There are many built-in packages such as java, lang, awt, javax, swing, net, sql, etc.

Packages have following properties.

① They are containers for classes / interfaces to avoid some collision.

② It stored in hierarchial manner and explicitly imported into new class using import statment.

③ It provides both naming and visibility control mechanism.

A package can be defined as a grouping of related types providing access protection and namespace management. Programmers can define their own packages to bundle group of classes / interface, etc. Since the package creates a new namespace there can't be any name conflicts with some in other package.

Algorithm

simple interface example

```
package pr;
interface printable{
 void print(); }

import pr.*;
class A implements printable{
 public void print(){ system.out.println("Hello"); }
 public static void main (string args[]){
   A obj = new A();
   obj.print();
  }
}
```

Conclusion- We successfully completed the assignment and understood the concept of interface and packages in java.