Java I/O (Input and Output)

Reading data from keyboard

There are many ways to read data from the keyboard. For example:

1] InputStreamReader

2] Console

3] Scanner

4] DataInputStream etc.

1] InputStreamReader class

InputStreamReader class can be used to read data from keyboard. It performs two tasks:

(i) connects to input stream of keyboard

(ii) converts the byte-oriented stream into character-oriented stream

BufferedReader class

BufferedReader class can be used to read data line by line by readLine() method.

```
import java.io.*;
class demoISR{
public static void main(String args[])throws Exception{
  InputStreamReader r=new InputStreamReader(System.in);
BufferedReader br=new BufferedReader(r);
int rno;   String name;
System.out.println("Enter your Roll Number");
 rno=Integer.parseInt(br.readLine());
System.out.println("Enter your name");
 name=br.readLine();
```

```
System.out.println("Welcome "+rno+" "+name);

 }  }
```

2] Java Console class

The Java Console class is be used to get input from console. It provides methods to read text and password.

If you read password using Console class, it will not be displayed to the user.

The java.io.Console class is attached with system console internally.

Methods of Console class

Method	**Description**
1) public String readLine()	is used to read a single line of text from the console.
2) public String readLine(String fmt,Object... args)	it provides a formatted prompt then reads the single line of text from the console.
3) public char[] readPassword()	is used to read password that is not being displayed on the console.
4) public char[] readPassword(String fmt,Object... args)	it provides a formatted prompt then reads the password that is not being displayed on the console.

Java Console Example

```
import java.io.*;

class ReadStringTest{

public static void main(String args[]){

Console c=System.console();

System.out.println("Enter your name: ");

String n=c.readLine();

System.out.println("Welcome "+n);
```

```
}

}
```

Java Console Example to read password

```
import java.io.*;

class ReadPasswordTest{

public static void main(String args[]){

Console c=System.console();

System.out.println("Enter password: ");

char[] ch=c.readPassword();

String pass=String.valueOf(ch);//converting char array into string

System.out.println("Password is: "+pass);

}

}
```

3] Java Scanner class

The Scanner class, which is part of the standard java class library, provides convenient methods for read input values of various data types; Scanner class is available in a package/API called java.util.*.

The Java Scanner class breaks the input into tokens using a delimiter that is whitespace by default.

Commonly used methods of Scanner class

Method	**Description**
public String next()	it returns the next token from the scanner.
public String nextLine()	it moves the scanner position to the next line and returns the value as a string.
public byte nextByte()	it scans the next token as a byte.
public short nextShort()	it scans the next token as a short value.
public int nextInt()	it scans the next token as an int value.

public long nextLong()	it scans the next token as a long value.
public float nextFloat()	it scans the next token as a float value.
public double nextDouble()	it scans the next token as a double value.

For invoking any of these methods we have to create Scanner class object. Object in Java is created by using “new” keyword. The following declaration creates a Scanner object that reads input from the keyword.

Scanner scan=new Scanner (System.in);

This declaration creates a variables called “scan” that represents a Scanner object. The “System.in” represents the standard input stream, which by default is the keyboard.

Java Scanner Example to get input from console

```
import java.util.Scanner;

class ScannerTest{

 public static void main(String args[]){

   Scanner sc=new Scanner(System.in);


   System.out.println("Enter your rollno");

   int rollno=sc.nextInt();

   System.out.println("Enter your name");

   String name=sc.next();

   System.out.println("Enter your fee");

   double fee=sc.nextDouble();

   System.out.println("Rollno:"+rollno+" name:"+name+" fee:"+fee);

   sc.close();

 }
```

}