

Lab – Assignment

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1) Write a program to find out all the armstrong numbers within a given range using a method named printArmstrongNumber(int start, int end) by taking input from the user. The program should print the Armstrong number in a given range starting from "start" and ending with "end".

Note: input should be taken from the keyboard. Use a loop to calculate the Armstrong number from "start" to "end". Also use loops to calculate the cube of a number. Do not use the Math.pow() function.

```
package com.wrapperclass.examples;
import java.util.Scanner;
public class ArmstrongNumbers {
public static void main(String[] args) {

    Scanner obj = new Scanner(System.in);
    int start, end, sum, r, count, n,n1, p;
    boolean flag=false;

    System.out.println("Enter Start limit ");
    start=obj.nextInt();

    System.out.println("Enter End limit ");
    end=obj.nextInt();

    for(int i=start;i<=end;i++)
    {
        n1=n=i;
        count=0;
```

```

        //count no. of digits
        while(n>0)
        {
            n=n/10;
            count++;
        }
        sum=0;
        p=1;
        while(n1>0)
        {
            r=n1%10;
            p=1;
            for(int j=1;j<=count;j++)
                p=p*r;
            sum=sum+p;
            n1=n1/10;
        }
        if(sum==i)
        {
            System.out.println( i);
            flag=true;
        }

    }

    if(flag==false)
        System.out.println("from "+ start + " To
"+ end + " No armstrong numbers found");

}

}

```

Output:



```
1 package com.wrapperclass.examples;
2 import java.util.Scanner;
3 public class ArmstrongNumbers {
4     public static void main(String[] args) {
5
6         Scanner obj = new Scanner(System.in);
7         int start, end, sum, r, count, n, nl, p;
8         boolean flag=false;
9
10        System.out.println("Enter Start limit ");
11        start=obj.nextInt();
12
13        System.out.println("Enter End limit ");
14        end=obj.nextInt();
15
16        // ... (rest of the code is not visible in the screenshot) ...
17    }
18 }
```

Problems | Javadoc | Declaration | Console | Coverage

<terminated> ArmstrongNumbers [Java Application] C:\Users\USER\p2\pool\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64_19.0.2.v20230129-1123\jre\bin\

Enter Start limit
100
Enter End limit
10000
153
370
371
407
1634
8208
9474

2) Write a program to calculate the gross salary of a group of

employees. Basic salary should be taken from the user.

If the basic salary is greater than 15000 ,HRA=20% and DA=60% will be given, else HRA=3000 and DA 70% will be given to the employee.

Note:Input of basic salary will be taken from the keyboard. After calculating the salary of one employee, the program will ask for the user's choice as int. If "-1" is entered then the loop will continue and the loop will exit for other int inputs.

```
package com.wrapperclass.examples;
import java.util.Scanner;
public class employeesalary {
    public static void main(String [] args)
    {
```

```
Scanner obj = new Scanner(System.in);

float basic, hra, da;
int choice;

do
{
    System.out.println("Enter basic pay");
    basic =obj.nextFloat();
    if(basic>15000)
    {
        hra=basic*20/100;
        da= basic*60/100;

    }
    else
    {
        hra=3000;
        da=basic*70/100;
    }

    System.out.println("HRA "+ hra);
    System.out.println("DA "+ da);

    System.out.println("Do you want to
continue for another Employee if yes input -1");
    choice=obj.nextInt();
    if(choice!= -1)
        break;

}while(choice== -1);

System.out.println("End of execution.");

}
```

Output:

```
1 package com.wrapperclass.examples;
2 import java.util.Scanner;
3 public class employeesalary {
4     public static void main(String [] args)
5     {
6         Scanner obj = new Scanner(System.in);
7
8         float basic, hra, da;
9         int choice;
10
11         do
12         {
13             System.out.println("Enter basic pay");
14             basic =obj.nextFloat();
15             //basic = 20000;
16
17             hra = basic * 0.4;
18             da = basic * 0.12;
19
20             System.out.println("HRA: " + hra);
21             System.out.println("DA: " + da);
22
23             System.out.println("Do you want to continue for another Employee if yes input -1");
24             choice = obj.nextInt();
25
26             if(choice == -1)
27                 break;
28         }
29     }
30 }
```

terminated> employeesalary [Java Application] C:\Users\USER\p2\pooof\plugins\org.eclipse.justj.openjdkhotspotjre.full.win32.x86_64.19.0.2.v20230129-1123\jre\bin\java

```
Enter basic pay
20000
HRA 4000.0
DA 12000.0
Do you want to continue for another Employee if yes input -1
-1
Enter basic pay
14000
HRA 3000.0
DA 9800.0
Do you want to continue for another Employee if yes input -1
0
End of execution.
```

3) Write a program to count and print the total number of odd and even

numbers from user inputs. Program will ask for user inputs in a loop.

```
package com.wrapperclass.examples;
import java.util.Scanner;
public class countevenodd {
    public static void main(String [] args)
    {
        Scanner scan = new Scanner(System.in);

        int totalEven = 0;
        int totalOdd = 0;

        System.out.print("Enter the number of integers:
");

        int n = scan.nextInt();

        for (int i = 1; i <= n; i++) {
            System.out.print("Enter integer " + i + ":
");
```

```
        int num = scan.nextInt(); // This is for
user inputs inside the loop
```

```
        if (num % 2 == 0) {
            totalEven++;
        } else {
            totalOdd++;
        }
    }
}
```

```
    System.out.println("Total even numbers: " +
totalEven);
```

```
    System.out.println("Total odd numbers: " +
totalOdd);
}
```

```
}
```

Output:

```
1 package com.wrapperclass.examples;
2 import java.util.Scanner;
3 public class countevenodd {
4     public static void main(String [] args)
5     {
6         Scanner scan = new Scanner(System.in);
7
8         int totalEven = 0;
9         int totalOdd = 0;
10
11         System.out.print("Enter the number of integers: ");
12         int n = scan.nextInt();
13
14         for (int i = 1; i <= n; i++) {
15             System.out.print("Enter integer " + i + ": ");
16             int num = scan.nextInt(); // This is for user inputs inside the l
17
18             if (num % 2 == 0) {
<terminated> countevenodd [Java Application] C:\Users\USER\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_19.0.2.v20230129-1123\jre\bin\java
Enter the number of integers: 5
Enter integer 1: 2
Enter integer 2: 5
Enter integer 3: 6
Enter integer 4: 8
Enter integer 5: 3
Total even numbers: 3
Total odd numbers: 2
```