DSA ASSIGNMENT 1

1.

**package** dsa;

**public** **class** ArmStrongnumber {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

**int** number = 153;

String number1 = Integer.*toString*(number);

**int** SumPower = 0;

**int** numDigits = number1.length(); // Calculate the number of digits

**for** (**int** i = 0; i < number1.length(); i++) {

**char** digit = number1.charAt(i);

**int** di = digit - '0';

**int** power = (**int**) Math.*pow*(di, numDigits); // Calculate the power correctly

SumPower += power;

}

**if** (number == SumPower) {

System.***out***.println("Armstrong number");

} **else** {

System.***out***.println("Not a armstrong number");

}

}

}

2.

**package** dsa;

**import** java.util.Scanner;

**public** **class** Prime {

**public** **static** **void** main(String[] args) {

System.***out***.println("Enter the number");

Scanner sc = **new** Scanner(System.***in***);

**int** number = sc.nextInt();

**if**(number== 2) {

System.***out***.println("Prime number");

}**else** {

**boolean** prime = **true**;

**for**(**int** i =2; i<=Math.*sqrt*(number); i++) {

**if**(number % i == 0) {

prime = **false**;

}

}

**if**(prime == **true**) {

System.***out***.println("Prime number");

}**else** {

System.***out***.println("Not a prime number");

}

}

}

}

3.

**package** dsa;

**import** java.util.Scanner;

**public** **class** Factorial {

**public** **static** **void** main(String[] args) {

**int** number ;

**int** factorial = 1;

System.***out***.println("Enter the number");

Scanner sc = **new** Scanner(System.***in***);

number = sc.nextInt();

**for**(**int** i = 1 ; i<= number ; i++) {

factorial \*= i;

}

System.***out***.println(factorial);

}

}

4.

**package** Recursion;

**public** **class** Fiboonaci {

**static** **int** fab(**int** n) {

**if**(n<=1) {

**return** n;

}**else** {

**return** *fab*(n-1)+ *fab*(n-2);

}

}

**public** **static** **void** main(String[] args) {

**int** n = 5;

**for**(**int** i = 0; i<=n; i ++) {

System.***out***.println("" + *fab*(i));

}

}

}

5.

**package** Recursion;

**public** **class** GCD {

**static** **int** G (**int** a , **int** b) {

**if**(b==0) {

**return** a;

}**else** {

**return** *G*(b , a % b);

}

}

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

**int** a = 54;

**int** b = 24;

System.***out***.println(*G*(a , b));

}

}

6.

**package** Recursion;

**public** **class** SqaureRoot {

**public** **static** **int** findSquareRoot(**int** x) {

**if** (x == 0 || x == 1) {

**return** x;

}

**int** i = 1;

**while** (i \* i <= x) {

i++;

}

**return** i - 1;

}

**public** **static** **void** main(String[] args) {

**int** number = 25;

System.***out***.println(*findSquareRoot*(number));

}

}

7.

**package** dsa;

**public** **class** Repeat {

**public** **static** **void** main(String[] args) {

String name = "Progamming";

**boolean** repeat = **false**;

**for**(**int** i = 0; i<name.length();i++) {

**for**(**int** j = i+1; j<name.length(); j++) {

repeat = **false**;

**if**(name.charAt(i)== name.charAt(j)) {

repeat = **true**;

**break**;

}

}

**if**(repeat) {

System.***out***.println("Repeated" + name.charAt(i));

}

}

}

}

8.

**package** dsa;

**public** **class** NonRepeat {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

String name = "Programing";

**boolean** repeat = **false**;

**for**(**int** i = 0; i<name.length(); i++) {

**for**(**int** j =i+1; j<name.length(); j++) {

**if**(i!=j && name.charAt(i)== name.charAt(j)) {

repeat = **true**;

**break**;

}

}

**if**(!repeat) {

System.***out***.println("Non Repeat character are" + name.charAt(i));

}

}

}

}

9.

**package** dsa;

**public** **class** Palandrom {

**public** **static** **boolean** isPalindrome(**int** x) {

**if** (x < 0) {

**return** **false**;

}

**int** reversed = 0;

**int** original = x;

**while** (x != 0) {

**int** lastDigit = x % 10;

reversed = reversed \* 10 + lastDigit;

x /= 10;

}

**return** original == reversed;

}

**public** **static** **void** main(String[] args) {

**int** num1 = 121;

**int** num2 = -121;

**boolean** isPalindrome1 = *isPalindrome*(num1);

**boolean** isPalindrome2 = *isPalindrome*(num2);

System.***out***.println(num1 + " is a palindrome: " + isPalindrome1);

System.***out***.println(num2 + " is a palindrome: " + isPalindrome2);

}

}

10.

**package** leap;

**import** java.util.\*;

**public** **class** LeapYear {

**public** **static** **void** main(String args[]) {

System.***out***.println("Enter the year");

Scanner sc = **new** Scanner(System.***in***);

**int** number = sc.nextInt();

**if**((number % 4 == 0)&&((number % 100 !=0)||(number % 400 == 0))) {

System.***out***.println("It is a leap Year");

}**else** {

System.***out***.println("It is not a leap ");

}

}

}