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***Introduction***

***JAVA was developed by James Gosling at Sun Microsystems Inc in the year 1995, later acquired by Oracle Corporation. It is a simple programming language. Java makes writing, compiling, and debugging programming easy. It helps to create reusable code and modular programs. Java is a class-based, object-oriented programming language and is designed to have as few implementation dependencies as possible. A general-purpose programming language made for developers to write once run anywhere that is compiled Java code can run on all platforms that support Java. Java applications are compiled to byte code that can run on any Java Virtual Machine. The syntax of Java is similar to c/c++.***

***History: Java’s history is very interesting. It is a programming language created in 1991. James Gosling, Mike Sheridan, and Patrick Naughton, a team of Sun engineers known as the Green team initiated the Java language in 1991.***

***Content***

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***Mains***

import java.util.Scanner;

class Mains

{

public static void main(String args[]) throws InterruptedException

{

Scanner s=new Scanner(System.in);

int choice=0;

while(choice!=8008)

{

String name="Amritanshu";

String pass="246";

System.out.println("======================");

System.out.println("Enter Your Username");

String username=s.next();

System.out.println("Enter Your Password");

String password=s.next();

if(username.equals(name))

{

if(password.equals(pass))

{

choice=8008;

loading anim=new loading();

anim.Animation();

Types\_Of\_Numbers noob=new Types\_Of\_Numbers();

noob.Num();

System.exit(0);

}

}

else

{

System.out.println("");

System.out.println("(っ◔◡◔)っ -: Invalid Username Or Password :- ");

System.out.println("");

}

}}}

***Types Of Numbers***

import java.util.Scanner;

class Types\_Of\_Numbers

{

public void Num()

{

int choice=0;

while(choice!=8008)

{

Scanner sc=new Scanner(System.in);

System.out.println("");

System.out.println("");

System.out.println("");

System.out.println("(っ◔◡◔)っ \* MENU \*");

System.out.println("========================");

System.out.println("1. Armstrong Number");

System.out.println("2. Automorphic Number");

System.out.println("3. Buzz Number");

System.out.println("4. Krishnamurthy Number");

System.out.println("5. Neon Number");

System.out.println("6. Naveen Number");

System.out.println("7. Prime Number");

System.out.println("8. Perfect Number");

System.out.println("9. Palindrome Number");

System.out.println("10. Pronic Number");

System.out.println("11. Spy Number");

System.out.println("12. Special Number");

System.out.println("13. Tech Number");

System.out.println("14. Ugly Number");

System.out.println("15. LCM\_\_HCF");

System.out.println("16. Magic Number");

System.out.println("17. Emrip Number");

System.out.println("18. Exit");

int menu=sc.nextInt();

switch(menu)

{

case 1:

{

System.out.println("ARMSTRONG NUMBER");

System.out.println("An armstrong number is a positive number which is equal to the sum of the cubes of its digits.\n for e.g.153");

int num,rem,cube,i;

int sum=0;

System.out.println("Enter the number to be checked: ");

num=sc.nextInt();

for(i=num;i>0;i/=10)

{

rem=i%10;

cube=rem\*rem\*rem;

sum=sum+cube;

}

if(sum==num)

System.out.println(num+" is an Armstrong Number");

else

System.out.println(num+" is not an Armstrong Number");

break;

}

case 2:

{

System.out.println("AUTOMORPHIC NUMBER");

System.out.println("Enter the number to be checked: ");

String num=sc.next();

int len=num.length();

int num1=Integer.parseInt(num);

int sq=num1\*num1;

if(len==1)

{

int r=sq%10;

if(r==num1)

System.out.println("The number is Automorphic");

else

System.out.println("The number is not Automorphic");

}

else if(len==2)

{

int r=sq%100;

if(r==num1)

System.out.println("The number is Automorphic");

else

System.out.println("The number is not Automorphic");

}

break;

}

case 3:

{

System.out.println("BUZZ NUMBER");

System.out.println("A number which is either divsible by 7 or ends with 7 is called Buzz NUmber.For e.g. 77");

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

int num=sc.nextInt();

if(num%7==0)

System.out.println("The number is Buzz Number");

else

System.out.println("The number is not Buzz Number");

break;

}

case 4:

{

System.out.println("KRISHNAMURTHY NUMBER");

System.out.println("A number whose sum of fractorial of digits is equal to the number itself is called KrishnaMurthy Number. \n For e.g.1,2,145");

System.out.println("Enter any number:");

int num=sc.nextInt();

int temp=num;

int digit,sum=0;

while(num==0)

{

digit=num%10;

}

if(temp==sum)

{

System.out.println("The number is KrishnaMurthy Number");

}

else

{

System.out.println("The number is not KrishnaMurthy Number");

}

break;

}

case 5:

{

System.out.println("NEON NUMBER");

System.out.println("A number is said to be neon number if the sum of the digits or square of the digits are equal to the number.");

System.out.println("Enter the number to be checked");

int num=sc.nextInt();

int sq=num\*num;

int sum=0;

while(sq!=0)

{

int d=sq%10;

sum +=d;

sq /=10;

}

if(num==sum)

System.out.println(num+ " is a neon number");

else

System.out.println(num+ " is not a neon number");

break;

}

case 6:

{

System.out.println("NAVEEN NUMBER");

System.out.println("A number is said to be naveen if the base of a given number divisible by the sum of its digits. \n For e.g.1, 10");

int n,num,r;

int sum=0;

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

n=sc.nextInt();

num=n;

while(num>0)

{

r=num%10;

sum=sum+r;

num=num/10;

}

if(n%sum==0)

{

System.out.println("It is a Naveen Number");

}

else

{

System.out.println("It is not a Naveen Number");

}

break;

}

case 7:

{

System.out.println("PRIME NUMBER");

System.out.println("The number that can be divided exactly by one and the number itself is called Prime Number. \n For e.g.2,3,5,7");

boolean number=false;

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

int num=sc.nextInt();

for(int i=2;i<=num/2;++i)

{

if(num%i==0)

{

number=true;

break;

}

}

if(!number)

System.out.println(num+" is a prime number");

else

System.out.println("The number is not prime number");

break;

}

case 8:

{

System.out.println("PERFECT NUMBER");

System.out.println(" A number whose sum of factors is equal to the number is called a perfect number.e.g.28");

int n,sum=0;

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

n=sc.nextInt();

int i=1;

while(i<=n/2)

{

if(n%i==0)

{

sum=sum+i;

}

i++;

}

if(sum==n)

{

System.out.println(n+ "is a perfect number.");

}

else

{

System.out.println(n+ "is not a perfect number.");

}

break;

}

case 9:

{

System.out.println("PALINDROME NUMBER");

System.out.println("A palindromic number is a number that reamins same even its digits are reversed.For e.g.121");

int rem=0,rev=0;

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

int num=sc.nextInt();

int temp=num;

while(num>0)

{

rem=num%10;

rev=rev\*10+rem;

num=num/10;

}

if(temp==rev)

System.out.println(temp+" is Palindrone:");

break;

}

case 10:

{

System.out.println("PRONIC NUMBER");

System.out.println("A number is said to be pronic if the product of two consecutive integers.For e.g.2,6,12");

int a,i,pro=0,st=0;

System.out.println("Enter the to be checked number:");

a=sc.nextInt();

for(i=1;a<=a;i++)

{

pro=i\*(i+1);

if(pro==a)

st=1;

break;

}

if(st==1)

{

System.out.println("The number is Pronic ");

}

else

{

System.out.println("The number is not pronic");

}

break;

}

case 11:

{

System.out.println("SPY NUMBER");

System.out.println("A positive integer is called a spy number if the sum and product of its digits are equal. For e.g.123 ");

int rem,quo,pro,sum,ano;

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

int num=sc.nextInt();

if(num<100)

{

rem=num%10;

quo=num/10;

pro=rem\*quo;

sum=rem =quo;

if(pro==sum)

System.out.println("It is a spy number");

else

System.out.println("It is not a spy number");

}

else if(num>100&&num<1000)

{

rem=num%10;

int temp=num/10;

quo=temp%10;

ano=num/100;

sum=rem+quo+ano;

pro=rem\*quo\*ano;

if(pro==sum)

System.out.println("It is a spy number");

else

System.out.println("It is not a spy number");

}

else

System.out.println("INVALID INPUT");

break;

}

case 12:

{

System.out.println("SPECIAL NUMBER");

System.out.println("A special number is a number whose sum of factorial is equal to the number itself.For e.g.1");

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

int num=sc.nextInt();

int sum=0;

int temp=num;

while(temp!=0)

{

int a=temp%10;

int fact=1;

for(int i=1;i<a;i++)

{

fact=fact\*i;

}

sum=sum+fact;

temp=temp/10;

}

if(sum==num)

{

System.out.println(num+" is a special number");

}

else

{

System.out.println(num+" is not a special number");

}

break;

}

case 13:

{

System.out.println("TECH NUMBER");

System.out.println("A number is tech number if the given number has an even number of digits and \n it can be exactly divided into two parts.For e.g.2025");

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

int num=sc.nextInt();

int co=0;

while(num>0)

{

int d=num%10;

co++;

num=num/10;

}

if(co%2==0)

{

int s=num%100;

int t=num/100;

int sum=s+t;

int pro=sum\*sum;

if(pro==num)

{

System.out.println("Given number is a tech number");

}

}

else

System.out.println("Given number is not a tech number ");

break;

}

case 14:

{

System.out.println("UGLY NUMBER");

System.out.println("If a number has only 2,3 or 5 prime factors and by convention 1 is also included the number is called Ugly number. \n For e.g. 3,4,6,89,10,");

System.out.println("Input the Integer Number:");

int n=sc.nextInt();

if(n<=0)

{

System.out.println("Input a Correct Number");

}

int x=0;

while(n!=1)

{

if(n%5==0)

{

n/=5;

}

else if(n%3==0)

{

n/=3;

}

else if(n%2==0)

{

n/=2;

}

else

{

System.out.println("It is not an Ugly Number");

x=1;

break;

}

}

if(x==0)

System.out.println("It is an Ugly Number");

break;

}

case 15:

{

System.out.println("LCM and HCF");

System.out.println("LCM is the lowest possible number that can be divisible by two numbers.");

System.out.println("HCF is the largest possible integer that can exactly divide two numbers.");

int hcf=0,a;

System.out.println("Enter the first number:");

int num1=sc.nextInt();

System.out.println("Enter the second number:");

int num2=sc.nextInt();

int pro=(num1\*num2);

for(a=1;a<=pro;a++)

{

if(num1%a==0 && num2%a==0)

hcf=a;

}

System.out.println("The HCF of the given numbers are: "+hcf);

int lcm=(num1\*num2)/hcf;

System.out.println("The LCM of the given numbers are: "+lcm);

break;

}

case 16:

{

System.out.println("MAGIC NUMBER");

System.out.println("A magic number is a number which gives sum exactly 1 when its digits are recursively added.For e.g.1252");

int n,rem=1,num;

int sum=0;

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

n=sc.nextInt();

num=n;

while(num>9)

{

while(num>0)

{

rem=num&10;

sum=sum+rem;

num=num/10;

}

num=sum;

sum=0;

}

if(num==1)

{

System.out.println("The enterd number is a magic number");

}

else

{

System.out.println("The enterd number is not a magic number");

}

break;

}

case 17:

{

System.out.println("EMRIP NUMBER");

System.out.println("An emrip number is a prime number that results in a different prime when its decimal digits are reversed.For e.g.13");

int num=0;

int temp=num;

int rev=0,rem=0,count=0;

System.out.println("Enter the number to be checked:");

num=sc.nextInt();

for(int i=2;i<=num/2;++i)

{

if(num%i==0)

{

count++;

}

}

while(num>0)

{

rem=num%10;

rev=rev\*10+rem;

num=num/10;

}

int co=0;

for(int i=2;i<=rev/2;++i)

{

if(rev%i==0)

{

co++;

}

}

if(co==count)

System.out.println("ITS EMRIP NUMBER");

else

System.out.println("Its not emrip number");

break;

}

case 18:

System.out.println("Exiting............");

System.out.println("(っ◔◡◔)っ -: THANK YOU FOR USING THIS PROGRAM :-");

choice=8008;

break;

}

}

}

}

***Loading***

class loading

{

public void Animation () throws InterruptedException

{

String s="\*\*\*\*loading\*\*\*\*";

String t="loading completed !";

for(int i = 0; i<s.length(); i++)

{

Thread.sleep(300);

System.out.print(s.charAt(i));

}

System.out.println(" ");

for(int l = 0; l<t.length(); l++)

{

Thread.sleep(300);

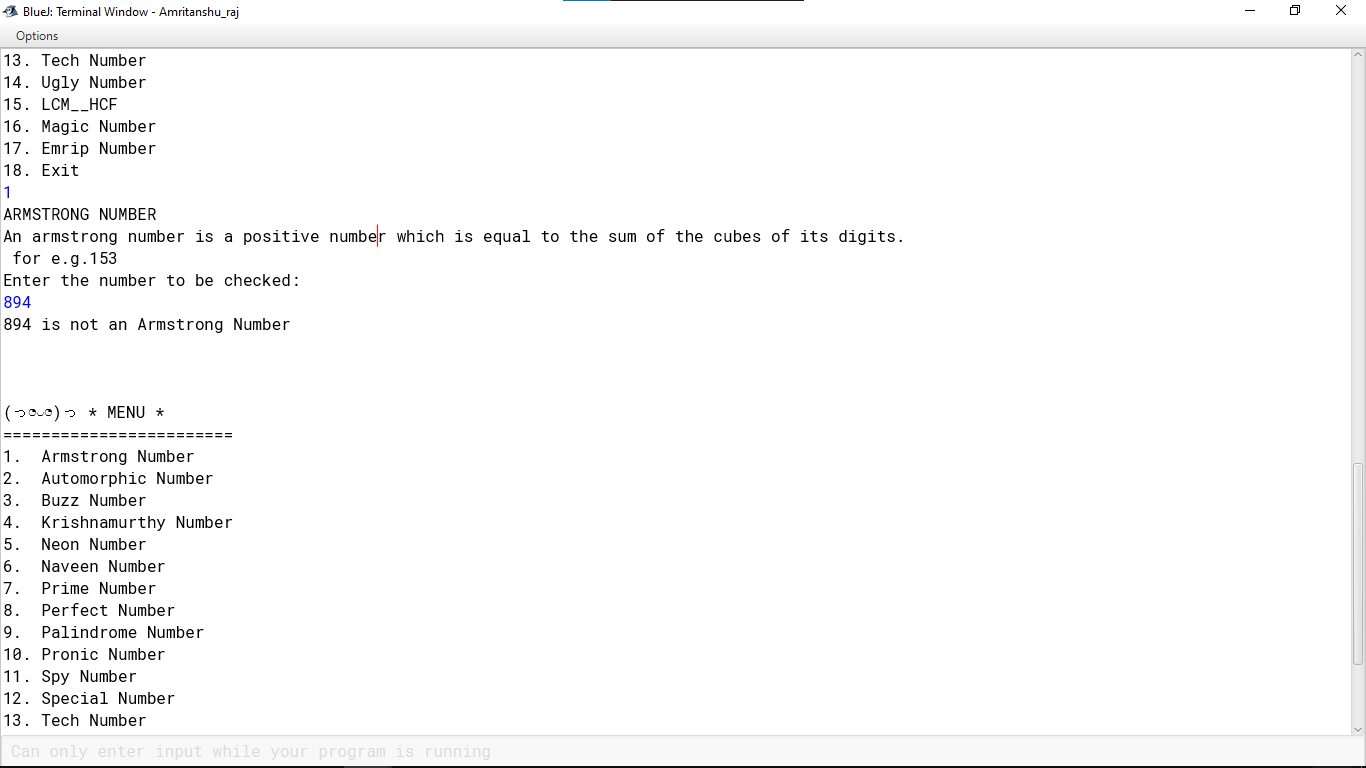
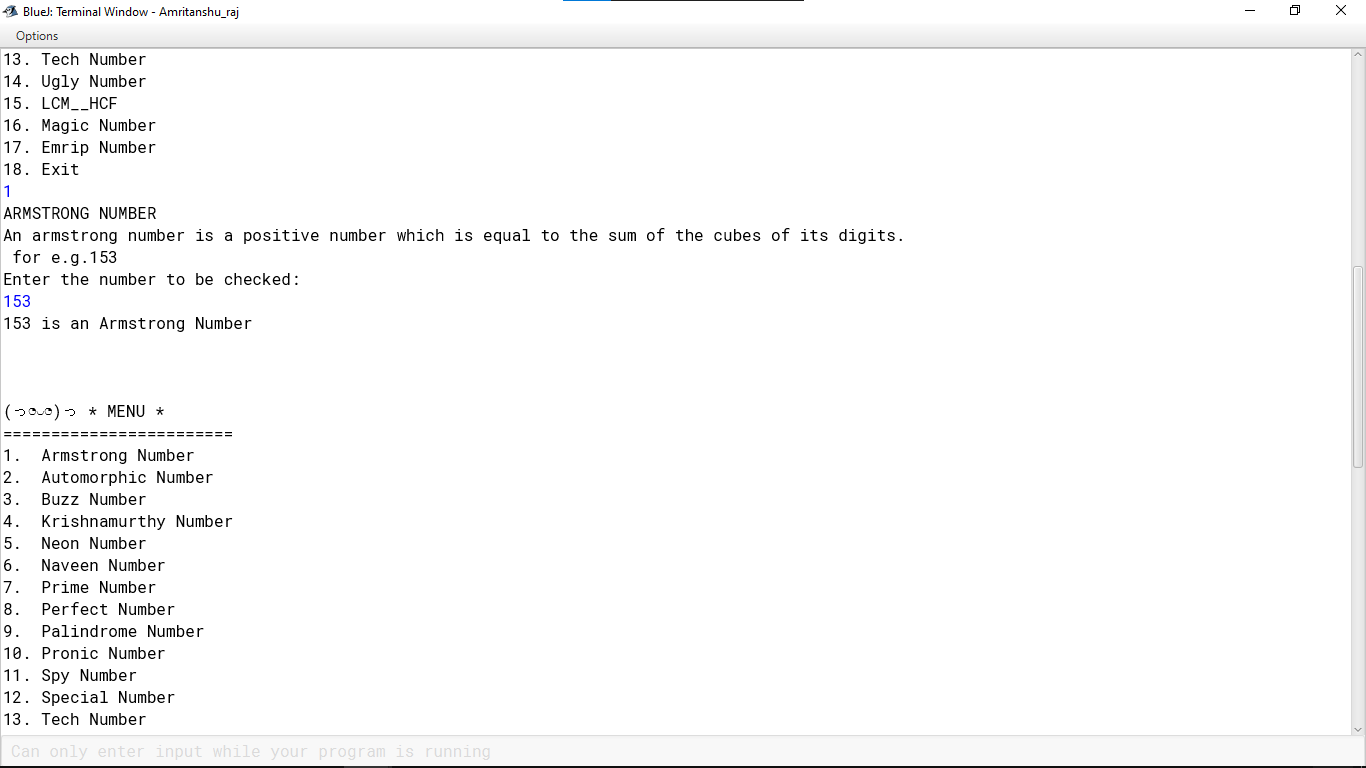
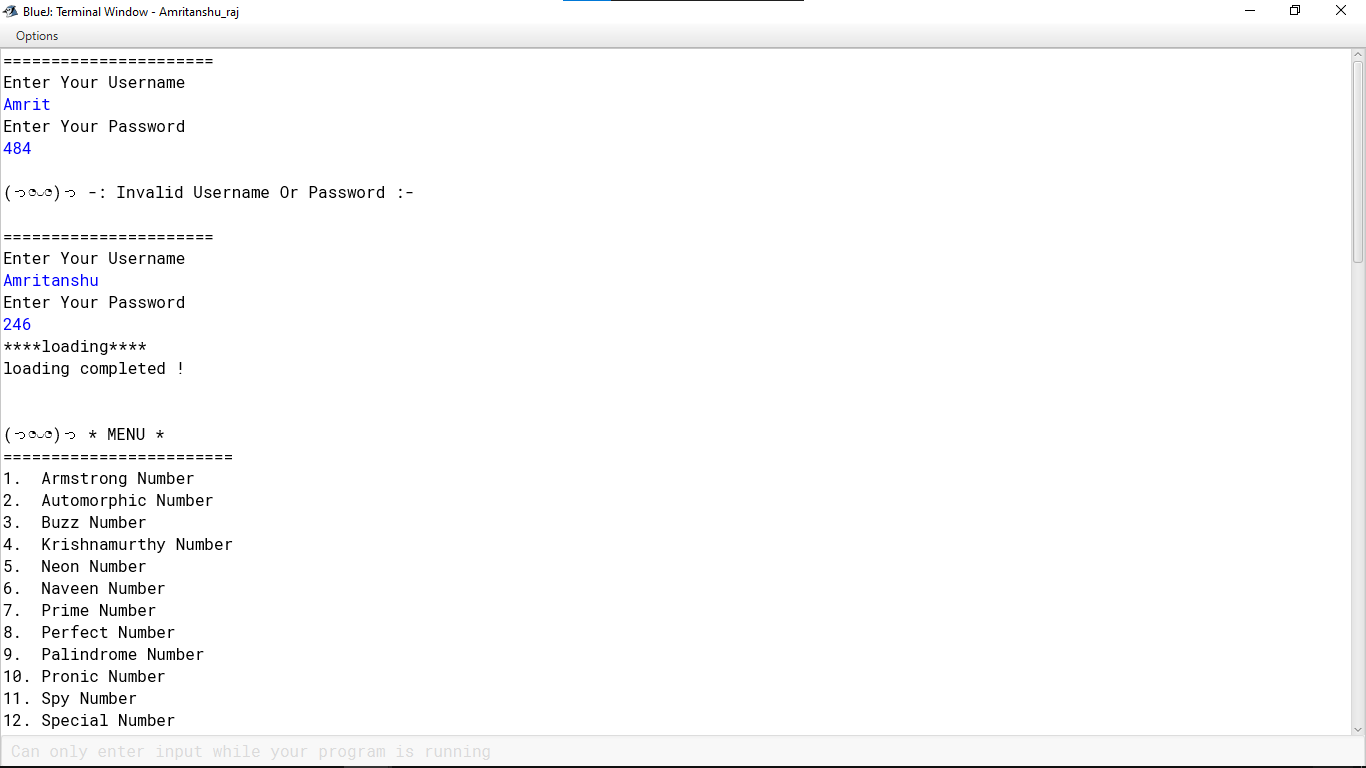
System.out.print(t.charAt(l));

}}

***Variable Description Table***

|  |  |  |
| --- | --- | --- |
| **Variable Name** | **Data Type** | **Description** |
| choice | int | Stores the user's menu choice. |
| s,sc | scanner | Used for reading user input. |
| menu | int | Stores the selected menu option. |
| num,num1 | int | Used to store integer values entered by the user. |
| rem,cube, i, sum | int | Used in the Armstrong Number calculation. |
| len | int | Stores the length of a number as a string. |
| sq | int | Stores the square of a number. |
| r | int | Stores a digit extracted from a number. |
| temp,digit | int | Temporary variables used in various calculations. |
| n,num,r | int | Stores and manipulates numbers in various calculations. |
| pro,st | int | Stores the product and status in the pronic number calculation. |
| number | boolean | Used to check if a number is prime. |
| sum | int | Stores the sum of factorial digits in special number calculation. |
| fact | int | Stores the factorial value in special number calculation. |
| co | int | Stores a count of factors in special number calculation. |

***Output***



***Conclusion***

***Java is an object-oriented programming language. It is a general-purpose programming language, mainly designed to run developed java code on all platforms that support Java without recompilation.***

***As we all know, Java is one of the most popular and in-demand programming languages to learn and it was one of the first languages to standardise high-level threading utilities.***

***Java project is a must for aspiring developers. This project helps developers develop real-world projects to hone their skills and materialise their theoretical knowledge into practical experience. Java has significant advantages both as a commercial language and also as a teaching language. Java project provides rigorous compile-time error checking typically associated with Pascal, allowing instructors to introduce students to GUI programming, networking, threads, and other important concepts used in modern-day software.***

***Bibliography***

**Books :-**

Logix Computer Application X