

Acknowledgement

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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.

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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("( つಠ_ಠ)つ -: 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("(づ●▽●)づ * 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
divisible 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 entered number is
a magic number");
}
```

```

        else
        {
            System.out.println("The entered 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("(つಠ_ಠ)つ -: 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

```
Blue: Terminal Window - Amritanshu_raj
Options
=====
Enter Your Username
Amrit
Enter Your Password
484

(づゝ)づ -: Invalid Username Or Password :-

=====
Enter Your Username
Amritanshu
Enter Your Password
246
****loading****
loading completed !

(づゝ)づ * MENU *
=====
1. Armstrong Number
2. Automorphic Number
3. Buzz Number
4. Krishnamurthy Number
5. Neon Number
6. Naveen Number
7. Prime Number
8. Perfect Number
9. Palindrome Number
10. Pronic Number
11. Spy Number
12. Special Number

Can only enter input while your program is running
```

```
Blue: Terminal Window - Amritanshu_raj
Options
13. Tech Number
14. Ugly Number
15. LCM_HCF
16. Magic Number
17. Emrip Number
18. Exit
1
ARMSTRONG NUMBER
An armstrong number is a positive number which is equal to the sum of the cubes of its digits.
for e.g.153
Enter the number to be checked:
153
153 is an Armstrong Number

(づゝ)づ * MENU *
=====
1. Armstrong Number
2. Automorphic Number
3. Buzz Number
4. Krishnamurthy Number
5. Neon Number
6. Naveen Number
7. Prime Number
8. Perfect Number
9. Palindrome Number
10. Pronic Number
11. Spy Number
12. Special Number
13. Tech Number

Can only enter input while your program is running
```

```
Blue: Terminal Window - Amritanshu_raj
Options
13. Tech Number
14. Ugly Number
15. LCM_HCF
16. Magic Number
17. Emrip Number
18. Exit
1
ARMSTRONG NUMBER
An armstrong number is a positive number which is equal to the sum of the cubes of its digits.
for e.g.153
Enter the number to be checked:
894
894 is not an Armstrong Number

(づ｡｡｡)づ * MENU *
=====
1. Armstrong Number
2. Automorphic Number
3. Buzz Number
4. Krishnamurthy Number
5. Neon Number
6. Naveen Number
7. Prime Number
8. Perfect Number
9. Palindrome Number
10. Pronic Number
11. Spy Number
12. Special Number
13. Tech Number

Can only enter input while your program is running
```

```
Blue: Terminal Window - Amritanshu_raj
Options
for e.g.153
Enter the number to be checked:
894
894 is not an Armstrong Number

(づ｡｡｡)づ * MENU *
=====
1. Armstrong Number
2. Automorphic Number
3. Buzz Number
4. Krishnamurthy Number
5. Neon Number
6. Naveen Number
7. Prime Number
8. Perfect Number
9. Palindrome Number
10. Pronic Number
11. Spy Number
12. Special Number
13. Tech Number
14. Ugly Number
15. LCM_HCF
16. Magic Number
17. Emrip Number
18. Exit
18
Exiting.....
(づ｡｡｡)づ -: THANK YOU FOR USING THIS PROGRAM :-

Can only enter input while your program is running
```

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.

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