## START WRITING FROM HERE

```
6. Magic (Special) Numbers
 6.1 Amicable
                 numbers
 import java util Scanner;
 Public class Amicable Number &
      public static void main (String args []) ?
            Scanner scan = new Scanner (syskm.in);
             System. out. print ("Ener 1st number, ");
             int num1 = scan. nextInr();
             Syikm. out. print ("Enkr 2nd number: ");
             int num2 = scan. nextInt();
             scan. dose ();
             int sop_num1 = 0, sop_num2 = 0;
             for (int 1 = 1; i knum | | i knum 2; j++ ) {
                  if (i!= num; 4+ i!= num2) {
                       it (ik num) 44 num) % == 0) 1
                             500-num += i;
                        if (: cnum 2 44 num 2 % ; == 0){
                             500 - num2 += i;
                        3
                   ì
             3
             if (500 - num) = = num2 48 500 - num2 = = num1){
                  System. out. printin ("The numbers are amicable number.");
              z
                else }
                  System. out println (The number are not amicable number.");
             3
       3
 3
output :
                     2nd number: 220
              IL numbers are amicuble numbers.
                              2/16
```

```
6.2
   Armstrong number
import java. util. Scanner;
import
       java lang. Math;
Public
       class Armstrong Number &
     Public static void main (string args []) {
          Scanner scan = new scanner (System. in);
          System. out. print ("Enter number = ");
          int num = scan nextInt();
          int sum Of Power of Digits = 0, dig; count = 0;
          for (int i = num; 1>0; 1/=10) { count += 1; }
         for (int 1= num; 1>0; 1/=10){
               dig = 1; % 10; 1000 = 1 1 10 = 1 100 1 100
               Sum Of Power Of Digits += Math. pow (dig, count);
        if ( sum of Power of Digits == num) {
              Syskm. out. print ("num + " is an Asmistrony number");
           Brelse, En majora ander
               Syskm. out. print ("num+ "is not an Armstrong number");
            3
     3
3
output :
 Enter number = 145
 145 is not an Armstrong number
  ENKY number = 153
  153 is an Armstrong Number
```

```
6.3
      Capricorn Number
 im port
        java. utll. Scanner;
 import
        java . lang . Math;
               Capricorn Number {
 Public
         class
      public static void main (string args[]) {
            Scanner scan = new Scanner (sylum. in);
            System. out. print ("Entr a number: ");
               num = scan. nextInt();
            int squareOfNum = num* num, count = 0;
            boolean check = true;
            for (int i = squareOfNum; 120; 1/= 10) { (ount += 1; }
            for (int i = 1; ix count; sitt) {
                 int divisor = (int) Math. pow (10, 1);
                 int first Part = squarcot Num / divisor;
                  int second Part = square Of Num 90 divisor;
                  if (firstpart + second Part == num) {
                       System.out. println (num + "il a capricorn number");
                       check = true;
                       break;
                  } else {
                       (heck = false;
                  ţ
           if (!check) {
                  System. out. println (num + "is not a capricorn number");
           3
     z
3
output :
                    9 number : 297
                    13 a capricorn number
```

3

```
6.4
      Circular
                 Prime
        java. util. Scanner;
IMPOIT
import java. lang. Math;
public class Circular Prime 4
     public static void main (String args []) {
          Scanner Scan = new Scanner (System. in);
          Systm. out print ("Enter a number: ");
              input = scan. nextInt ();
          int count = p, rem, nym = input;
           boolean check = true; 1 - 1 ming 1000 more
          for (int i = hum; is 0; i/= 10) { count ++; }
    THE GOT FOR MOINT I SA I AL = COUNTY STATE FOR THE
               Yem = num % 10; = . . ... applied
               num /= 10;
                num = (rem * (int) Math. pow (10, count - 1)) + num;
                if (! check Prime (num)) {
                & Check = false;
                    break;
            $ 5 ( ) is a comment of the grand mode of $1.
           if (chick) { Type of a Mount
               Syskm.out. println (input + " is a circular print");
            3 else 2.
               syskm.out. println (input + " is not a circular Print");
      public static boolean checkPrime (int n) {
             boolean bool = false;
            for (int i = 2; ich; i++){ 2 ( domes +
 ELEMENT 1990 Sife (nº1617=910) 21/book = falle; & break; }
  Lessel , son it "etserfood booking of the Brigg & sois &
                            5/16
             return bool;
```

```
Out put :
FARET a number: 1193
1193 is a Circular Prime
6.5 Happy
             Number
import java. util. Scanner;
         class Happy Number &
 Public
    public static void main (String args[]) {
         Scanner scan = new Scanner (syntem.in);
         System. out. print ("Enker a number": ");
         int input = scan. next Enr();
         int sumof square of Dig = 0, dig , num = input)
         boolean theck = falle in + 170%
        while (true) }
           for (int 1 = num; iso; i/= 10) }
                  dig = 100 10 mm
                  sumor square of Digt = dig dig;
              if (sum OF Square OF Dig < 10) }
                  if ( sumorsquare of big == 1) {
                        check = time; ( down) 11
             o is " + rubreakitaing . two. motion
                                              : 149 140
                   3 else {
                        check = faue ;
                                              Enter a number: 32
                     break;
                                              32 is a Happy Number
                   z
               num = sumofsquare OfDig;
               sumofsquare Of Dig = 0;
         4
          if (onck) q
               System: out. printin (input + "is a Happy Number");
          3 else & System our printin (input + " is not a Happy number); }
     }
                              6/16
```

```
Automorphic Number
import java. util. Scanneri
      class Automorphic Number &
public
     public static void main (String args []) {
         Scanner scan = new Scanner (System.in);
         Systim. Out print ("Enky a number: ");
         int num = scan. nextInt (); is the contraction of
         Scan. close ();
            square = num * num;
         int
         int last Dignum = num % 10;
         int last Dig Square = square % 10;
         if (last Dig num = = last Dig Square) {
              System.out.println (num + " is an Automorphic Number");
        13 else 5"
              System, out. println (numt "is not an Automorphic Number"
          3
     3
3
output !
Enter a number: 25
25 is an Automorphic Number
    Disarium Number
6.7
import java util Scanner;
import Java. lang. Math;
public class Disarium Number &
             static void main (string argue 3) {
      Public
```

```
Scanner scan = new scanner (Systme.in)i
System.out.print ("Enter a number: ");
int input = scan. nextInt();
scan. close ();
int num = input , count = 0, dig , sum of Power = 0;
for (int i=num; 150; 1/=10) { count ++; }
for (int i= count; iso; i==) {
     dig = num % 10;
     sum of Powers += Math. pow (dig, i);
     Num /= 10;
 if (sumof Powers == input) {
     System.out. println Cinput + " is a Disgrium Number");
] else to A no a " + poon) many the mange
     System.out.println (input + " is not a Disarium Number");
Banking our of the cape of the pay althirty our conceptions
Output 1
Enkra number: 135
 135 is a Disarium Number
```

## 6.8 Magic Number

import java. util. Scanner;

public class magic Number {

 public static void main(string args []) {

 Scanner scan = new Scanner(Jystem.in);

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

 Int input = scan.nextInt();

 Scan.close();

 int sumofDigits = 0, dig num = input;

```
do à
   Sumof Digits = 0;
   for (int i = num; i>o; i/= 10){
        dig = i % 10;
        sumof Digits + = dig;
    Num = Sum Of Digits;
3 while (sum of Digity >= 10) is shown to be a summer of
if (sum Of Digits == 1) {
    System. out. println (input + "is a Mgic Number");
3 else {
    System. out. println (input + " is not a Magic Number");
                                  F : Tadmin is The
ζ
                                 RESMANDER I MAMBER
3
                             Kadmuh Simorballag Ci-
output :
                     impere java. 131. Stankery
Enter a number: 226
226 is a Magic Numbers pomomotioner bottom and a hour
          Pilliger Mill (Title Augus (Title)
6.9 NEON Number some of and a most removed
            System o TEMP! ) TAIRD . IND MILES
import java. util. Scanner:
public class Neon Number & Common Comment
     public static void main (String args [])?
          Scanner scan = new Scanner (system.in);
          System: out print ("Enter a number: ");
           int num = scan. next Int ();
           Scan. close (); ibt of they a ver
           int square = num * num, dig, sumot Dig = 0;
```

```
for (int i = square; i>o; i/= 10){
   dig = 1 % 10;
     Sum of Dig + = dig; promote and promote and are
}
if (sum of Dig == num){
     System. out. println (num + " is a Neon Number ");
                               LUIRIJIONUS = MAR
3 else {
     System.out. println (num + "is not a Neon Number");
3
3
output :
Enter a number: 9
9 is a Neon Number
6.10 Palindromic Number
 import java. util. Scanner;
 public class Palindromic Number Endounts signi de de mos
      public static void main (String args[]) {
          Scanner scan = new Scanner (System. in);
          System. out. print ("Enter a number: ");
          int num = Scan. next Int();
          Scan. close();
          int dig, rev = 0;
           for (int i = num; i>0; i/= 10){
               dig = 10% 10;
               rev = rev lo +dig;
```

```
1) 3 (and (2) 200 2 1) d
      if (num == rev) {
           System. out. printin (num + " is a Palindromic Number");
      3 else {
           System. our printly (num + " is not a Palindromic Number");
                Filliam galite! with they don't didny
      137
              CHI MILLIPE CONTRACT WERE STORES TO FROME
      output: " . . . mus .. voins") / ming . . workers
      FATER a number: 16461
      16461 is a Palindromic Number Day . (16 20)
                       j(or =) i jost impo = i ani) lot
      6.11 Perfect Number
            Symple Lacionia Digge - factorial (digital)
       import java. util. Scanner;
       Public class Perfect Number & piratora + dans 1 +1
or publice static void main (String args []) }
                 Scanner scan = new Scanner (System.in);
"> donne lange Sysumout. print ("Enter a number: ");
                  int num = scan. nextInf();
                  int symof Divisors = o;
                                                       output :
                                                       Enkra number: 6
                  for (inti=1; i4= num/2; i++){
                      if (num %) = = 0) {
                                                       6 is a perfect numbe
                           SUMOF DIVISORS += 1;
                               ii = * Iniration
                      3
                  ţ
                  if (sumof Divisors) 1775 num) & AYDIST
                       System. out. printin (num + " is a Perfect Number");
                  3 else 1
                       System.out. println (num + " is not a Perfect Number")
                                        Enker a number: 145
                  3
             3
                                     Modernia in a special Mandell
```

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```
ROLL NUMBER:
  6.12
      Special Number
                                           I ( NOV = = NOV ) I
           System. Out. printly (nom + " is a Pulladra mi.
   IMPORT
           java. util. Scanner;
                                                     ( 619 )
          st clau special Number & although the money
   Pu blic
        public static void main (String aris[]) }
             Scanner scan = new Scanner (System. in);
             System. out. print ("Enter a number: "); Tragero
             int num = scan. n(xtInr();
                                       Brdl : redman a THAF
                  dig, symog factorial of Dig = 0;
              for (imr i = num; i>o; i/= 10){
                   dig = i % 10 10;
                                       BILL PERFECT NUMBER
                   Sum of Factorial Of Digt = tactorial (dig);
              }
                                    import java, util Sugarer:
              if (sumoffactorial of Dig = = num) {
               E ([] System: out printin (num + "is a special Num ber");
               } else {
                         SCHAREF SCAN = ACL SCAN
                    Syskm.out. println (nym + "il not a special Number");
                   int aum = sign. nexting);
         3
                                IND SAMOF DIVISORY
         public
                 static int factorial (int n) {
               int factorial = 1;
 100-100 1-6 3
                               if (num for :
               for (int i='n; i>o; i--) {
                     factorial = ij
               return stactorial; rocivid comes) if
         System. Out- principa ( num + " is o Perto
                                          £ 2215 E
     output:
              System. out printly inum i is no
     Enter a number: 145
```

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145 is a special Number

```
6.13
      Spy Number
import java. util. Scanners granning diluming dragmi
public class Spy Number {
     public static void main (string args []) }
     Wall Scanner scan = new Scanner ( system in );
      System-out print (" Enter a number " ");
         int num = scan Next Int ();
          scan. close ();
                            Typen) - nun yei
              sumof Digits = 0, product Of Digs = 1, dig;
         for lint if num is iso is it is 101) {
        315 1 Cram 1, 01 01:1) = 010 11 13
       TE STIME SAM DEDIGING THE INDIG TO SEL
              product Of Digs * = dig; sal
          3
                       1. 2415 - A 120'S
          if (sum of Digits == product of Digits) {
               System.out.println(num + " is a spy Number ");
          } else {
          System. out. println (num + " is not a Spy Number");
         on it is a sugar following the commence
output :
FINTER a number: 1124
1124 is a Spy Number
                                 warmin digit en li d
```

```
6-14
    Ugly Number
import java. util. Scanner; asserted with warry
public class Ugly Number {
    public static void main (string args [7) {
        Scanner scan = new Scanner (System.in);
      System. out print ("Ener a number : ");
        Int input = Scan. nextInt(); ...
        int num = input; (3.4.0.30), 0.222
         boolean cuck = true;
         While ( num ! = 1) {
           if ( num % 5 = = 0) { num /= 5; }
             else if (num % 3 == 0) { num 1 = 3;}
             else if (num 162 == 0) { num 1= 2; }
             elseift + + jalage cherg
                 check = false;
              break;
         1
         if (check) {
            System.out.println(input + " is an ugly Number");
         } else {
              System.out-println (input + "is not an Ugly Nymber"
         }
    3
                                             4 7 1 7 Fg 4
                               ALT POSMIN A DAME
output:
FAMEY a number: 6
6 is an Ugly Number
```