

Problem 1

Write a java program that enters three integers and displays the number of unique integers among the three.

For example, the 9, 3, 4 should display 3 because they have 3 different values. By contrast, 6 7 6 would display 2 because there are only 2 unique numbers among the three which are 6 and 7.

Sample Input	Sample Output
9 3 4	3
6 7 6	2
1 1 1	1

```
int a, b, c;
System.out.print("Enter 3 numbers : ");
a=scan.nextInt();
b=scan.nextInt();
c=scan.nextInt();

if (a==b && b==c) {
    System.out.println("1");
}
else if(a==b || a==c || b==c){
    System.out.println("2");
}
else {
    System.out.println("3");
}
```

Problem 2

Write a java program that enters three integers and determines if one of the integers is the midpoint between the other two integers; that is, if one integer is exactly halfway between them.

Your program should display "No midpoint" if no such midpoint relationship exists otherwise display the midpoint. The integers could be passed in any order; the midpoint could be the 1st, 2nd, or 3rd.

Example

1 2 3	2
6 4 8	6
10 30 20	20
7 9 2	No midpoint

```
int a, b, c, d;

System.out.print("Enter 3 numbers : ");

a=scan.nextInt();
b=scan.nextInt();
c=scan.nextInt();

d=(a+b+c)/3;

if (a==d) {
    System.out.println("Midpoint = " + a);
}

else if(b==d){
    System.out.println("Midpoint = " + b);
}

else if(c==d) {
    System.out.println("Midpoint = " + c);
}

else System.out.println("No Midpoint ");
```

Solution 2

```
x=(a+b+c)/3;
if(a==x || b==x || c==x) {
    System.out.println("Midpoint = " + x);
}
else {
    System.out.println("No Midpoint");
}
```

Problem 3

What will the value of "X" be after the following code executes?

```
Int a=10, b=20, x;  
x=a+b;  
a=b;  
x=x+a+b;
```

Answer: 70

```
x=10;  
x=2*x;  
x++;
```

Answer: 21

```
int a=5, b=5, x=10;  
x=x+a+b;  
x=x+a+b;
```

Answer:30

```
int a, x=10;  
a=x++;  
x=a+x;
```

Answer: 21

```
int a, x=10;  
a=++X;  
x=a+x;
```

Answer: 22

Problem 4

Write a java program that enters 3 integer numbers by the user, and then display the maximum value of them.

```
int a, b, c;

    System.out.println("Enter 3 numbers ");

    a=scan.nextInt();

    b=scan.nextInt();

    c=scan.nextInt();

    if(a>=b && a>=c) {

    System.out.println("Maximum = " + a);

    }

    else if(b>=a && b>=c) {

    System.out.println("Maximum = " + b);

    }

    else {

    System.out.println("Maximum = " + c);

    }
```

Problem 4

Write a java program that enters 3 integer numbers by the user, and then display them in decreasing order.

```
int a, b, c;

    System.out.println("Enter 3 numbers ");

    a=scan.nextInt();

    b=scan.nextInt();

    c=scan.nextInt();

    if(a>=b && b>=c) {
        System.out.println(a + "-" + b + "-" + c);
    }
    else if(a>=c && c>=b) {
        System.out.println(a + " " + c + " " + b);
    }
    else if(b>=a && a>=c) {
        System.out.println(b + " " + a + " " + c);
    }
    else if(b>=c && c>=a) {
        System.out.println(b + " " + c + " " + a);
    }
    else if(c>=a && a>=b) {
        System.out.println(c + " " + a + " " + b);
    }
    else {
        System.out.println(c + " " + b + " " + a);    }
```

Problem 5

Write a program that enters an integer N and displays all even numbers [0, N] (inclusive).

Sample Input

Sample Output

If n=10

0 2 4 6 8 10

```
int i=0, n;
```

```
System.out.print("Enter N ");
```

```
n=scan.nextInt();
```

```
do{
```

```
    System.out.println(i);
```

```
    i=i+2;
```

```
}while (i<=n);
```

Problem 6

Write a java program that enters integer numbers by the user and then:

- Calculates and displays the sum of even numbers.
- Calculates and displays the multiplication of odd numbers.
- Counts and displays the numbers entered by the user.
- Counts and displays the numbers divided by 5.
- The program should stop when the user enters the number 0.

```
int a, s=0, m=1, c=0, c5=0;
```

```
System.out.println("Enter a number ");
```

```
System.out.println("-----");
```

```
do{
```

```
    a=scan.nextInt();
```

```
    if(a%2==0) {
```

```
        s=s+a;
```

```
    }
```

```
    else {
```

```
        m=m*a;
```

```
    }
```

```
    c++;
```

```
    if(a%5==0) c5++;
```

```
    }while (a!=0);
```

```
System.out.println("Sum of even = " + s);
```

```
System.out.println("Multiplication of odd = " + m);
```

```
System.out.println("Counts of all numbers = " + c);
```

```
System.out.println("Counts of numbers divided by 5 = " + c5);
```


Problem 7

Write a java program that keeps on reading numbers by the user until the user enters a number ≥ 50 .

The program should display the average of these numbers.

```
int a, s=0, c=0;
```

```
do {  
    System.out.print("Enter a number : ");  
    a=scan.nextInt();  
    s=s+a;  
    c++;  
}while(a<50);
```

```
double avg=s/c;
```

```
System.out.println("Average = " + avg);
```

Problem 8

Write a java program that enters an integer number by the user.

The program should display all its digits in reverse order on the same line separated with a comma.

Example: if the user enters the value 15248, the program should display; 8, 4, 2, 5, 1

```
int a, r;
```

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

```
a=scan.nextInt();
```

```
do {
```

```
    r=a%10;
```

```
    System.out.print(r + ", ");
```

```
    a=a/10;
```

```
} while(a!=0);
```

Problem 9

Write a java program that enters an integer number by the user.

The program should calculate and display the sum of all its digits.

Example: if the user enters a value 15248, the sum of its digits = 20 (1+5+2+4+8)

```
int a, r, s=0;
System.out.print("Enter a number : ");
a=scan.nextInt();
do {
    r=a%10;
    s=s+r;
    a=a/10;
} while(a!=0);
System.out.println("Sum = " + s);
```

Problem 10

Write a java program that reverses digits within an integer number given by the user.

Example: 1234 becomes 4321.

```
int a,x, r,i, s=0,t=1, c=0;

System.out.print("Enter a number : ");
a=scan.nextInt();
int b=a;

do {

    a=a/10;
    c++;

} while(a!=0);

for(i=1; i<c; i++) {
    t=t*10;
}

a=b;
do {
    r=a%10;
    x=r*t;
    s=s+x;
    a=a/10;
    t=t/10;

} while(a!=0);

System.out.println("new a " + s);
```

Problem 11

Write a java program that:

- Enters a word of type string.
- Displays the number of its characters.
- Displays the first and the last character separated with a comma.
- Displays the word in reverse order.

String name;

```
System.out.print("Enter a word : ");
```

```
name=scan.next();
```

```
int len=name.length();
```

```
System.out.println("Length = " + len);
```

```
System.out.println(name.charAt(0) + "," + name.charAt(len-1));
```

```
Int i = len-1;
```

```
do {
```

```
    System.out.print(name.charAt(i));
```

```
    i--;
```

```
}while(i>=0);
```

Problem 12

Write a program that enters a text and counts the following letters: M, a, and v. otherwise you count the other letters as extra.

Sample Input

My name is java

Sample Output

M 2

A 3

V 1

Extra 7

String text;

```
System.out.print("Enter a text: ");
```

```
text=scan.next();
```

```
int cm=0, ca=0, cv=0, c=0;
```

```
int len=text.length();
```

```
int i=0;
```

```
do{
```

```
    if (text.charAt(i)=='m') {
```

```
        cm++;
```

```
    }
```

```
    else if (text.charAt(i)=='a') {
```

```
        ca++;
```

```
    }
```

```
    else if (text.charAt(i)=='v') {
```

```
        cv++;
```

```
    }
```

```
    else {
```

```
        c++;
```

```
    }
```

```
i++;
```

```
}while(i<len);
```

```
System.out.println("count A = " + ca);
```

```
System.out.println("count m = " + cm);
```

```
System.out.println("count v = " + cv);
```

```
System.out.println("count extra = " + c);
```

Problem 13

Write a program that enters an integer and displays "All digits are odd" if all its digits are odd, otherwise displays "Not all digits are odd".

Sample Input Sample Output

135319 All digits are odd

9145293 Not all digits are odd

```
int a,r;
boolean x=false;
System.out.print("Enter a number : ");
a=scan.nextInt();
do{
    r=a%10;
    if(r%2==0) {
        x=true;
        break;
    }
    a=a/10;
} while(a!=0);
if (x==false) {
    System.out.println("All digits are odd");
}
else {
    System.out.println("Not All digits are odd");
}
```

Problem 14 - Dice:

Write a java program that simulates rolling of two 6-sided dice until their combined result comes up as 7.

$$2 + 4 = 6$$

$$3 + 5 = 8$$

$$5 + 6 = 11$$

$$1 + 1 = 2$$

$$4 + 3 = 7$$

You won after 5 tries!

```
int a,b,s, c=0;

do {

    a=scan.nextInt(6)+1;
    b=scan.nextInt(6)+1;
    s=a+b;
    System.out.println(a + " + " + b + " = " + s);
    c++;

} while (s !=7);

System.out.println("You won after " + c + " tries");
```