ARAB ACADEMY FOR SCIENCE & TECHNOLOGY
COURSE: INTRODUCTION TO COMPUTER PROGRAMMING
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ASSIGNMENT (7)

1. Write a program to print each of the following figures using "nested loops":

(a)

```
* * * * * * * * * *
* * * * * * * * * *
* * * * * * * * * *
* * * * * * * * * *
* * * * * * * * * *
```

(b)

```
* + * + * + * + *
* + * + * + * + *
* + * + * + * + *
* + * + * + * + *
```

(c)

```
########
$$$$$$$$
########
$$$$$$$$
########
```

(d)

```
XOXOXOXOX
OXOXOXOXO
XOXOXOXOX
OXOXOXOXO
XOXOXOXOX
```

(e)

```
*
* *
* * *
* * * *
* * * * *
* * * * * *
* * * * * * *
* * * * * * * *
```

(f)

```
* * * * * * * * * *
* * * * * * * * *
* * * * * * * *
* * * * * * *
* * * * * *
* * * * *
* * * *
* * *
* *
*
```

(g)

```
*
* *
* * *
* * * *
* * * * *
* * * * * *
* * * * * * *
* * * * * *
* * * * *
* * * *
* * *
* *
*
```

(h)

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6
1 2 3 4 5 6 7
1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9 0
```

2. Write a program that prints the multiplication table of a number entered by the user. For example, if the user enters (5), the program prints the following:

	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50

3. Write a program that prints all the prime numbers below 100. A prime number is that which has exactly two different divisors (1 and itself).
i.e. the program should print the following numbers: 2, 3, 5, 7, 11 …, 89, 97.

4. Trace each of the following programs and show its output:

(a)
```
int i, j;
for(j=1; j<=3; j++)
 {
  for(i=1; i<=10; i++)
    {
      if(i%3==0)
        System.out.print("*");
      else
        System.out.print("+");
    }
       System.out.print("\n");
 }
```

(b)
```
int i, j, k;
for(i=1; i<=5; i++)
 {
  for(j=1; j<=3; j++)
    {
      for(k=1; k<=4; k++)
        System.out.print("*");
     System.out.print("\n");
    }
   System.out.print("\n");
 }
```

(c)
```
int y;
int x=10;
while(x>=1)
 {
  y=1;
  while(y<=x)
   {
   System.out.print(y%10);
    y++;
   }
  System.out.print("\n");
  x--;
 }
```

(d)
```
int x, y;
x=1;
while(x<=10)
 {
  y=10;
  while(y>=x)
   {
    System.out.print("*");
     y--;
   }
  System.out.print("\n");
  x++;
 }
```