Python

Homework 02

Tasks

1. Write a script that print all the numbers from 1 to 10.

    a. Modify the script so that it will ask the user for a number **N** and print all the numbers from 1 to **N**.

    b. Modify the script so that it will print only the **EVEN** number from 1 to **N**.

2. Write a script that asks the user for 5 numbers and tell which number is the highest.
   * For this task you are not allowed to use the built in functions **max()** and **min()**.

    a. Modify the script so that it will also tell which of the numbers is the lowest.

    b. Modify the script again so that it will keep asking the user for numbers until the user enters the number 0. Only then check which number is the highest and lowest.

3. Write a script that asks the user for a number and then prints all the divisors for that number. For example, if the user types the number 15 the result will look like the following.

    1
    3
    5
    15

4. Write a script that asks the user for a number and tells if it is a prime number or not. For example, if the user types the number 97 the script will the that it is a prime number.

5. Write a script that asks the user for dimensions of a square and then prints the square using the '*' symbol. For example, if the user enters the number 5 the script will print the following.

    * * * * *
    * * * * *
    * * * * *
    * * * * *
    * * * * *

6. Modify the previous script so that it will ask for two numbers X and Y. Than the script will print a square according to the given dimensions. For example, if the user types 4 and 3 the result will look like the following.

    * * * *
    * * * *
    * * * *

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7. Modify the previous script so that it will print a hollow square. For example, if the user types 5 and 4 the result will look like the following.

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

8. Write a script that generates a random phone number. The phone number should be a valid Israeli mobile phone number.

   a. Modify the script so that it will ask the user for a number **N** and then generate **N** phone numbers.

9. Write a script that asks the user for an IP address and tell if it is a private or a public IP address.

10. Write a script that generates random IPv4 addresses according to the following rules.

    a. Ask the user if he wants a private or a public IP address.

    b. If the user wants private IP addresses generate addresses from the following ranges: 10.0.0.0/8, 172.16.0.0/12, 196.168.0.0/16.

    c. If the user wants public IP addresses, generate addresses from the non-private ranges.

    d. Print all the generated IP addresses at the end.