

CS594, Python Programming Lab

(<https://www.iitg.ac.in/asahu/cs594/>)

Assignment I : Based on Fundamental of the Loop (while, for) and basic input/output Deadline : 11.55 PM IST, 16th September 2020

The solution programs can be done without using the function, list, recursion and array

- **Part (a)** : Write a **Python program** to find the value of unknown positive integer U using a series of question. The question you can asked for a variable X are from these three Boolean answerable question (a) $X > U$, (b) $X < U$ and (c) $X == U$. The true value of question $X == U$ signifies that you found the value of U as X . Range of U is not given and the value of U can be any positive integer (may be very big number).

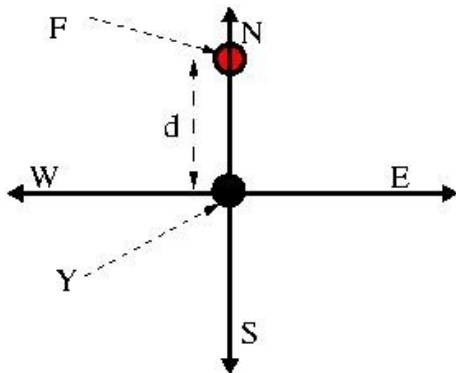
You are supposed to come up with an approach to find the value of U with asking minimum number of questions. Your program should output the number of question asked (or number of times you performed comparison with U).

Sample input for U: (a) 50, (b) 1332060, (c) 6576, (d) 1800

- **Part (b)** : Write a **Python program** to find the square root a positive integer up to accuracy of 5th decimal places. You are not supposed to use the inbuilt square root function to calculate the square root of the number.

Sample input : (a) 50, (b) 2000, (c) 6576, (d) 1800

- **Part (c)**: Suppose you are standing exactly at a crossing point of two roads namely North-South road and East-West road (as shown in the figure) in your city. And your friend F is visiting your city for the first time and he/she is waiting for you to pick up. F is standing near to the same crossing point but not exactly at the crossing point. Assume F is standing at distance d from the crossing point but F is not able to inform you the direction and distance from the crossing point.



You are supposed to walk from the crossing point to your friend and pick him/her up. You can see your friend if you are in the right direction and at the right distance from the crossing point otherwise you cannot see your friend. As you don't know the distance and direction in which your friend is standing, you may need to design a strategy to search for your friend such that you need to walk minimum distance.

Write a Python program to find your friend. The evaluator (TA/instructor) of your program will provide input (Direction, Distance) and your program should output the covered distance.

You are allowed to use input distance ($Idist$) and input direction ($Idir$) to test find the friend.

`//similar to if (mydir==Fdir and mydist >=Fdist) is true //found your friend`

Sample input : (a) W, 2443, (b) E, 2003, (c) N, 25430, (d) S, 28

Submission procedure:

- Send your assignments code in compressed folder (tgx/zip/gz) to asahu < at > iitg < dot > ac < dot > in with "CS594: Assignment<I> , < RollNo > " as subject before the deadline
- Please embed comments, how to run and required inputs properly in the code, or a separate readme file.