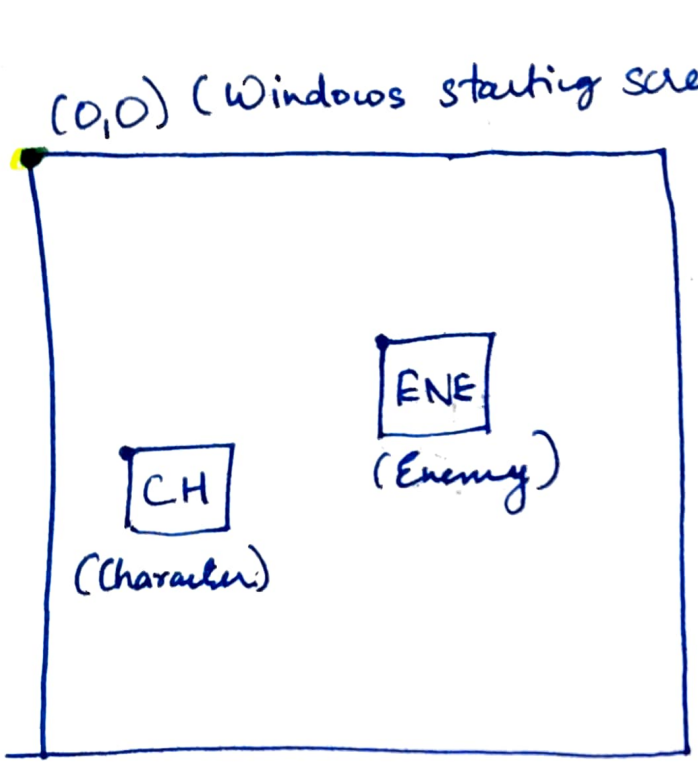
BASIC ENEMY AI

21/02/2024



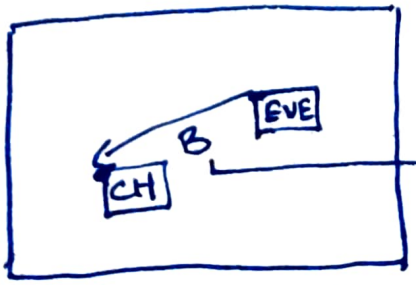
- The Character & Enemy have their own screen space locations
- The upper left corner of the screen is (0,0) in screen space

Important point:-

- In order for the enemy to chase the character, the enemy needs to know which direction to move.

FIRST STEP IN GETTING THE DIRECTION IS:-

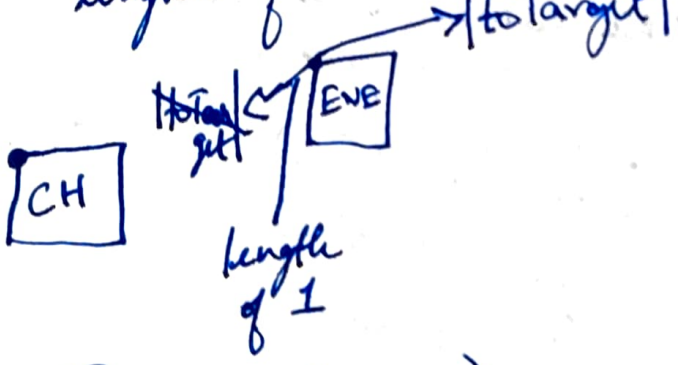
- Finding the Vector from the enemy to character.



→ lets call this Vector B.

- The reason we need to normalize toTarget Vector because the distance from the enemy to the character will change each frame.
- And we just need a vector with a consistent length pointed in the correct direction.

  - So the Vector from the enemy to the character normalized will be have a length of one.



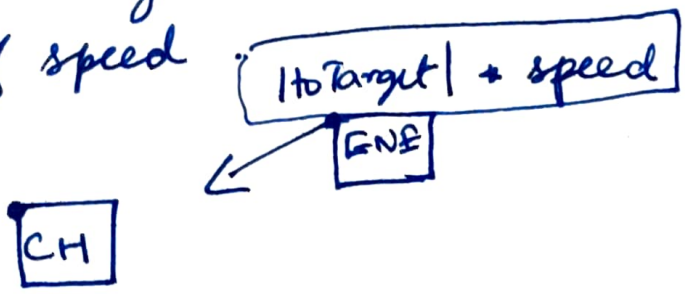
(2) Repetition (Enemy)

i) Each frame, get toTarget.
ii) Normalize to Target
iii) Scale this vector by multiplying it by the enemy's speed.
(Multiply |toTarget| by speed

|toTarget| → Character (Knight)
speed → Enemy's speed

iv) Move the Enemy

• This will give us a vector from the enemy to the character with a length of speed.



Final step is to move the enemy towards the character by adding this vector quantity to its world location. [(We are doing this every frame because the relative positions of the character and the enemy will change from frame to frame].

• So as the character moves relative to the enemy, each frame, the enemy will get this vector and make these calculations in order to move close to the character.

⇒ MAIN STEPS TO PERFORM (IN SHORT)

⇒ in Enemy::tick()

Pseudo Code

- Get toTarget
- Normalize toTarget
- multiply |toTarget| by Speed
- Move Enemy