# 2D and 3D Game Programming.

## @ Pentagon Defense Game
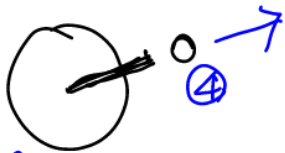
\* Mid-term Project



Pentagon Life

3

Num Hit

23

missile

bullet

gun

pentagon

bullet range.
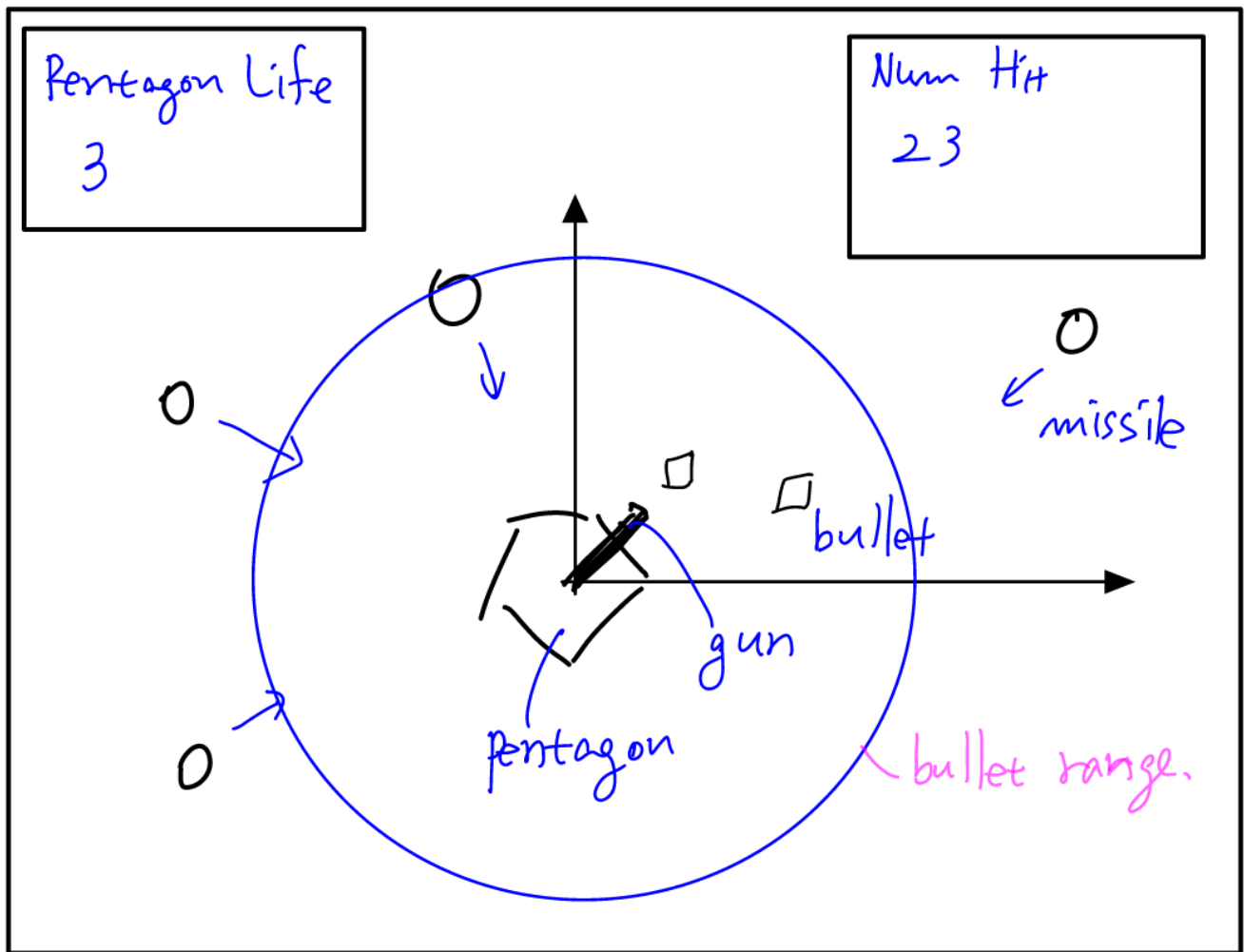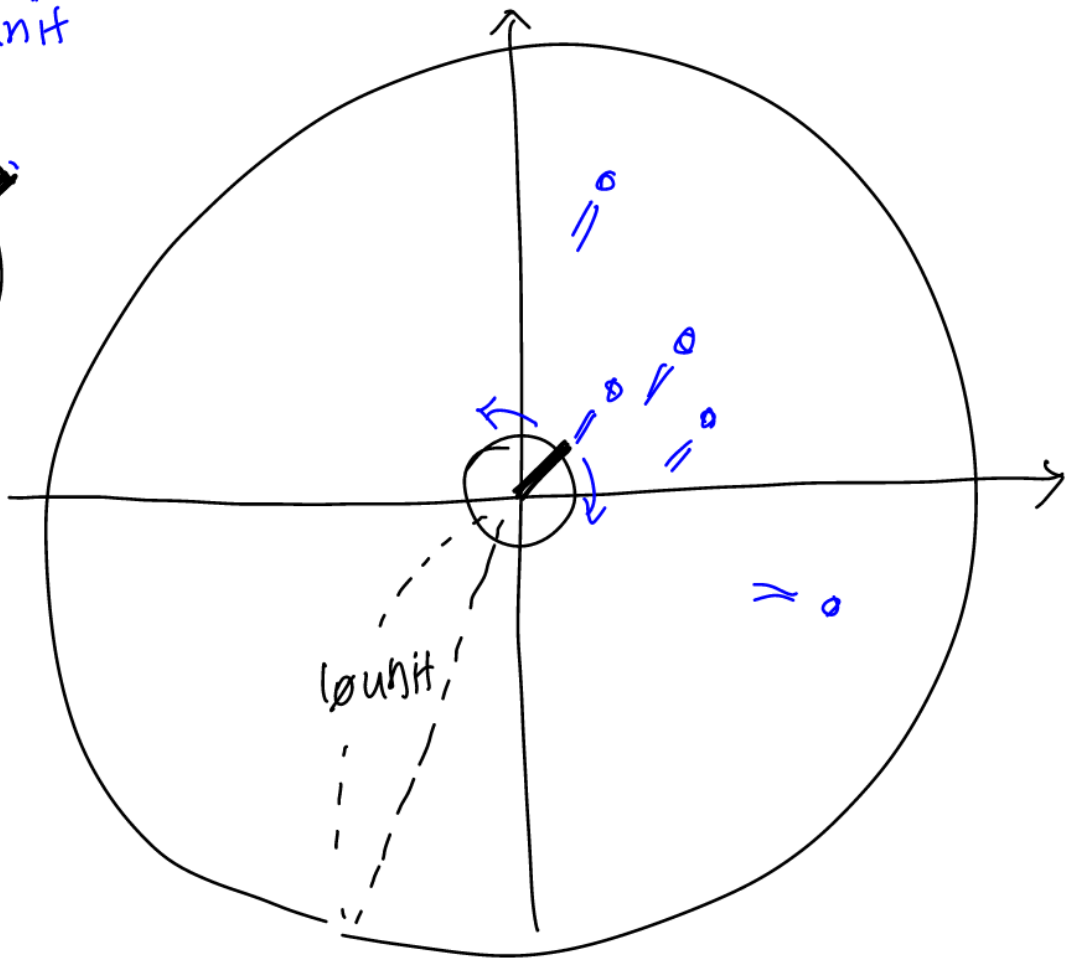
Due Date: October 22, 2018



② gun

③
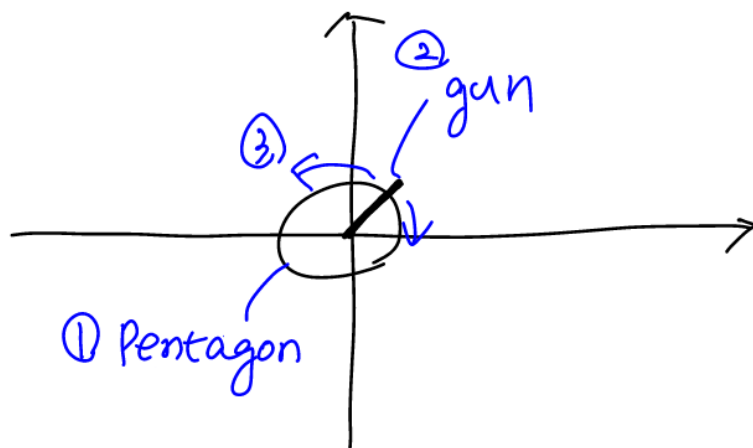
① Pentagon
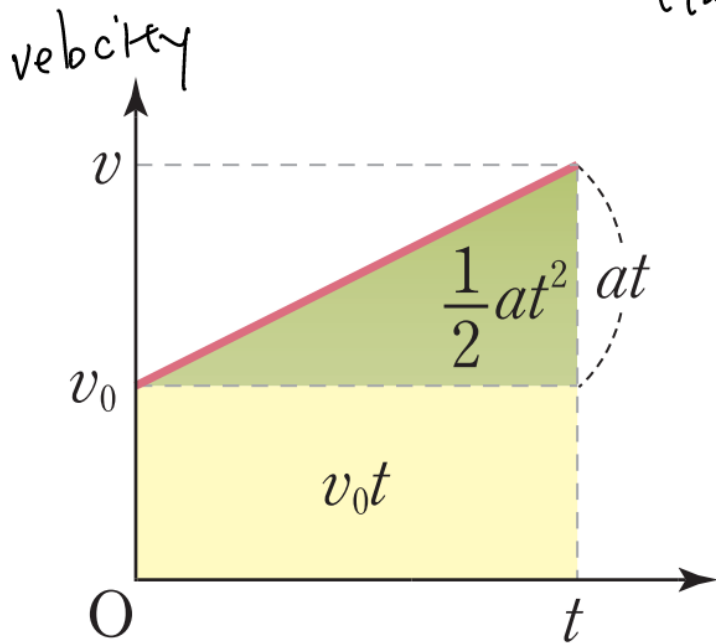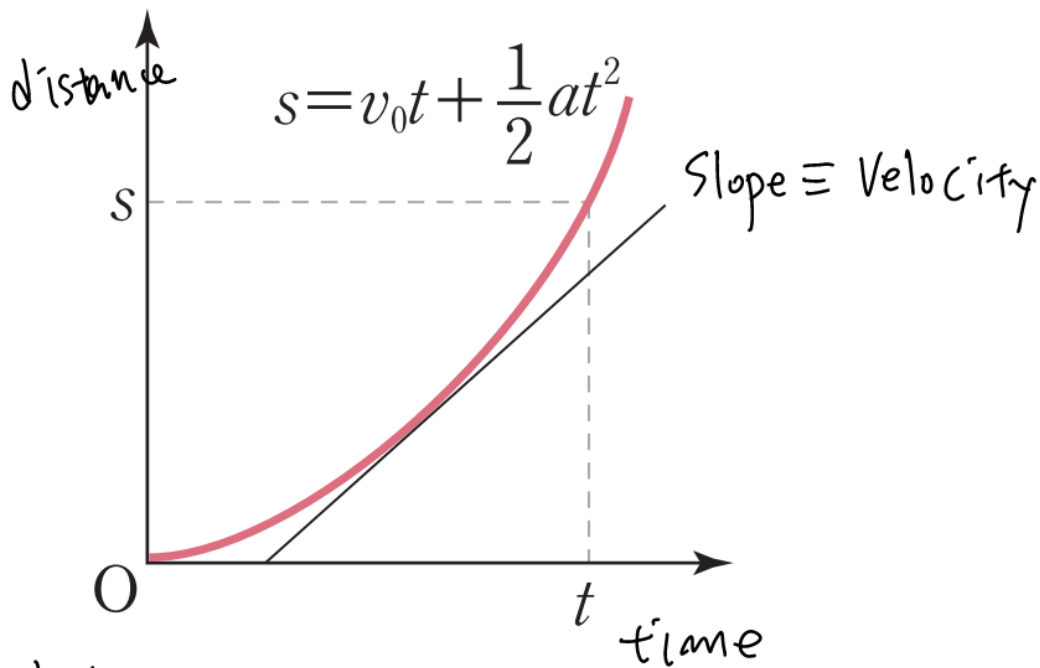
③ Player can control the gun with mouse.



④ Player can fire a bullet with left mouse button.
( Maxionum 5 bullets)
↳ bullet disappears when the distance to pentagon
exceeds certain limit. (10 unit )

**\* pentagon**
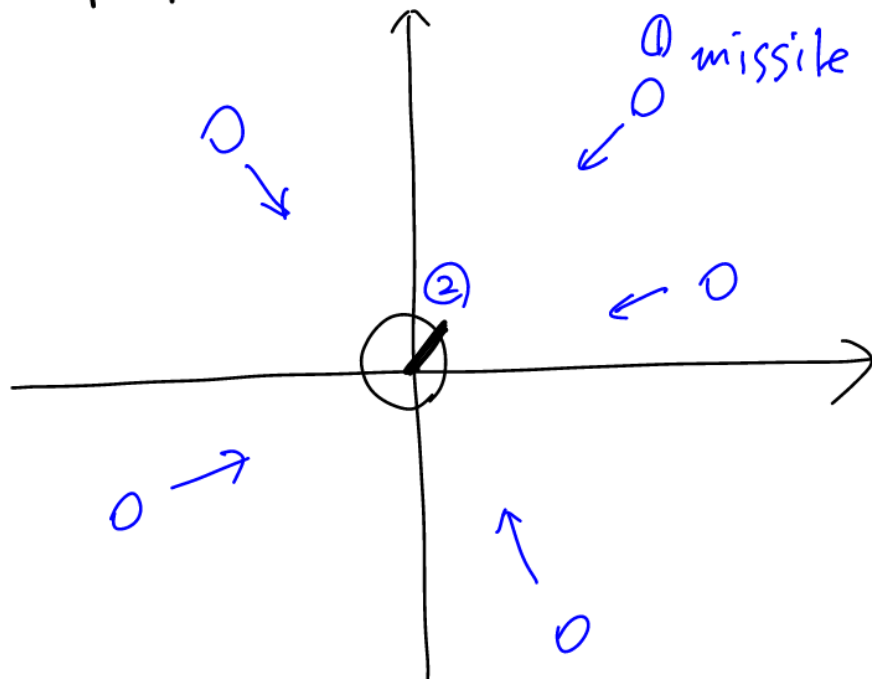0.5 unit



1 unit

(0unit)

1) Implement Draw Circle ( hdc, center, radius, # polygon)
2) lomplement class KPentagon
3) lomplement mouse logic
   ↳ WM_LBUTTONDOWN.
      ↳ check mouse position.
4) lomplement class KBullet ( must have an acceleration)

distance

$$s = v_0 t + \frac{1}{2} a t^2$$

Slope ≡ Velocity

$s$

O

$t$ 
time

velocity

$v$

$$v = v_0 + at$$

$$s = s_0 + v_0 t + \frac{1}{2} a t^2$$

$\frac{1}{2} a t^2$   $at$

$v_0$

$v_0 t$

O

$t$

**\* Missile Attack**

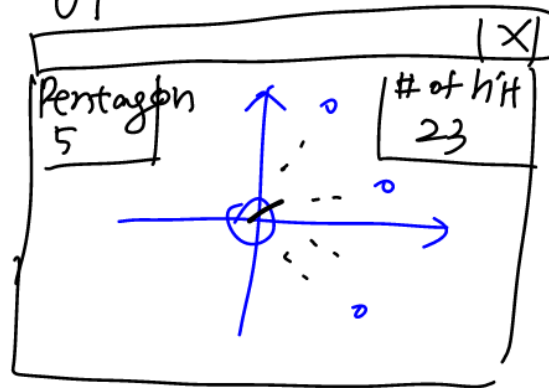① missile

②

① randomly generated   missile approaches

pentagon (maximum 10 missiles)

② Player must hit a missile with bullet
( Acceleration)

1) Implement class KMissile


# * Game System

1) Implement class KBulletManager
2) Implement class KMissileManager
3) Implement UI

```
 _____
|                            |X|  |
| Pentagon    ↑  o    |# of hit|  |
|  5  |            |    23     |  |
|         o                       |
|       ⊕----→                    |
|          o                      |
|       o                         |
|_____|
```

Complete remained parts of the game!