

# 게임프로그래밍

---

2014758085 이승찬

- 19.10.23 -

# 개발환경

## HW

CPU: I5 8265U

GPU: GeForce MX 150

## SW

OS: Windows 10 64bit

에디터: Notepad++

시퀀서: Ableton live 10

VSTI: Bleep'

# 개선 및 추가, 변경

---

# 캡슐화 getter setter

수정된 snake.js 일부코드

...

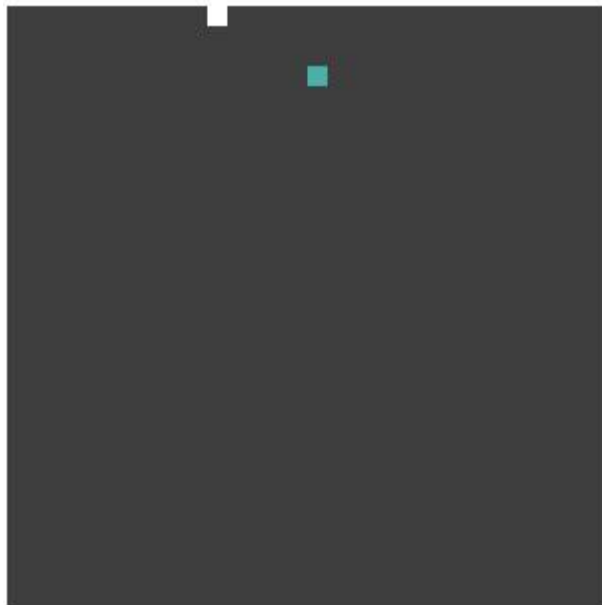
```
this.getXOffset = function() { return this.xOffset; }  
this.getYOffset = function() { return this.yOffset; }
```

...

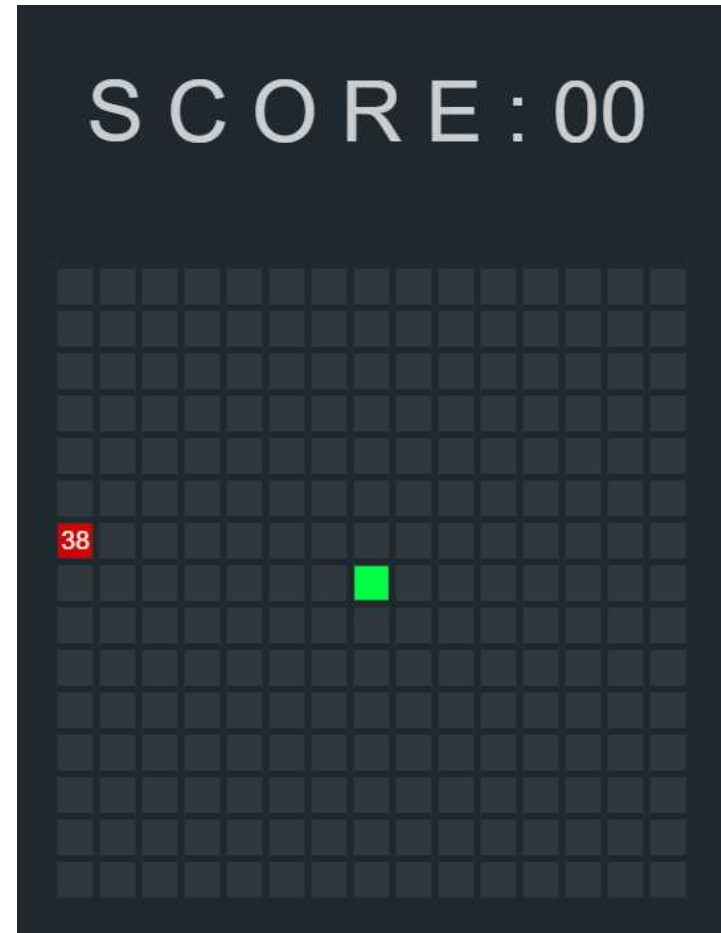
```
this.setXPos = function(x) {this.x = x;}  
this.setYPos = function(y) {this.y = y;}
```

...

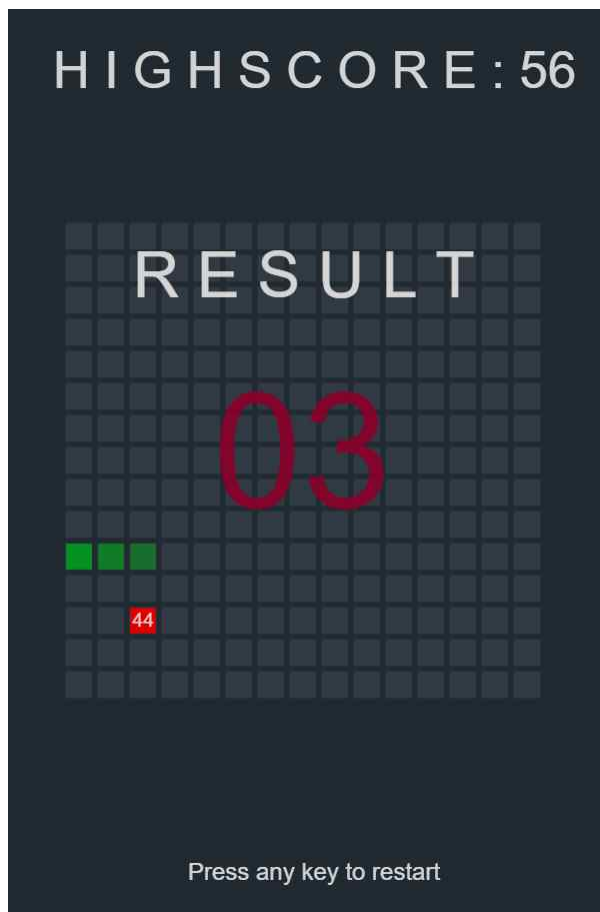
# 인게임 현재 스코어 개선



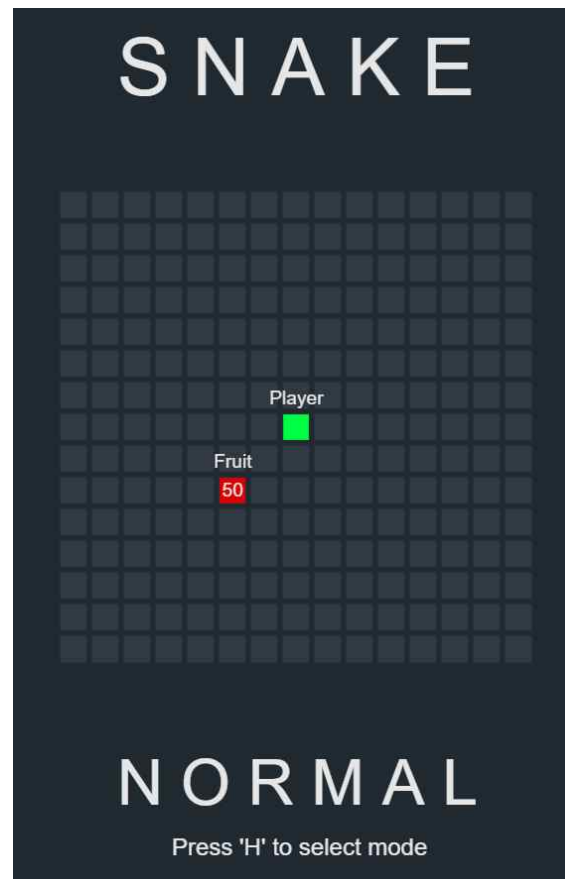
0



# 모드별 하이스코어 추가



# 타이틀 화면 추가



# BGM, SFX 추가

// 오브젝트 상호작용 SFX

const FRUIT\_EAT = './assets/sfx/fruiteat.ogg';

const ITEM\_EAT = './assets/sfx/itemeat.ogg';

const ITEM\_SPAWN = './assets/sfx/itemspawn.ogg';

const DEAD = './assets/sfx/dead.ogg';

const START = './assets/sfx/start.ogg';

// 키입력 SFX

const DIR\_LEFT = './assets/sfx/left.ogg';

const DIR\_RIGHT = './assets/sfx/right.ogg';

const DIR\_UP = './assets/sfx/up.ogg';

const DIR\_DOWN = './assets/sfx/down.ogg';

// 상황별 BGM

const INGAME = './assets/ingame.ogg';

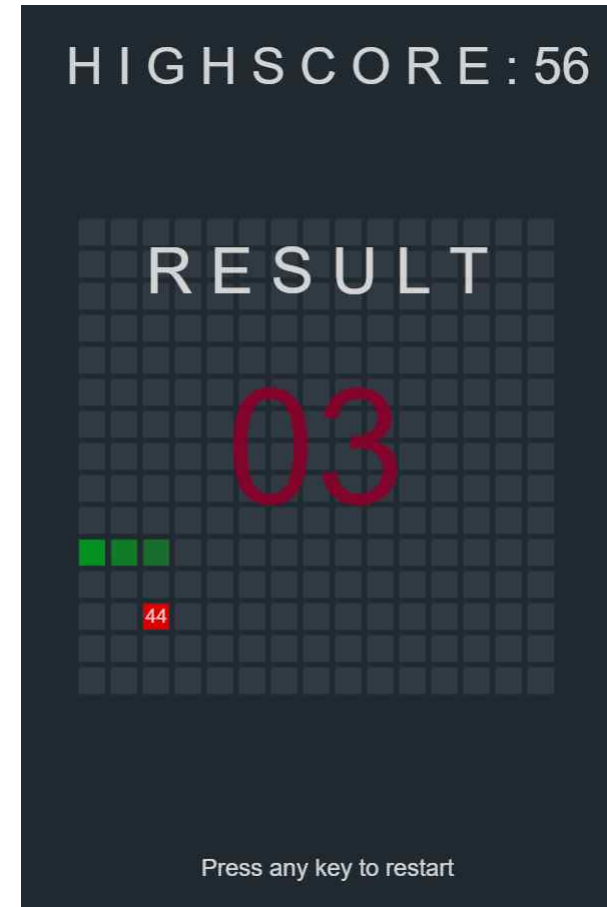
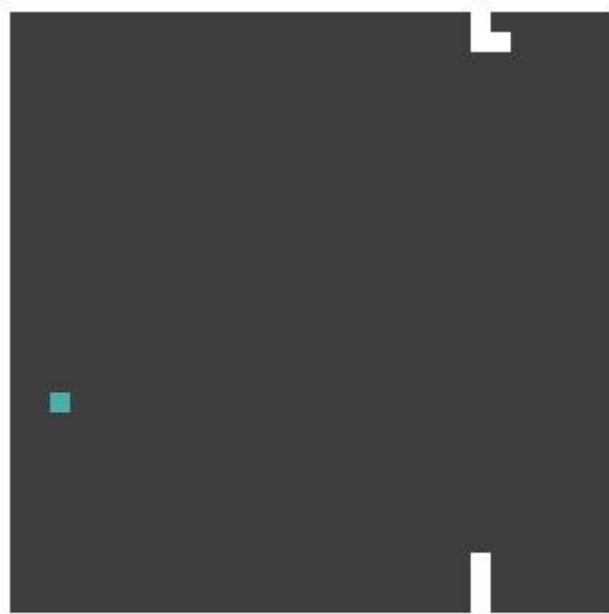
const INGAME\_HARD = './assets/ingame-hard.ogg';

const RESULT = './assets/result.ogg';

const TITLE = './assets/title.ogg';



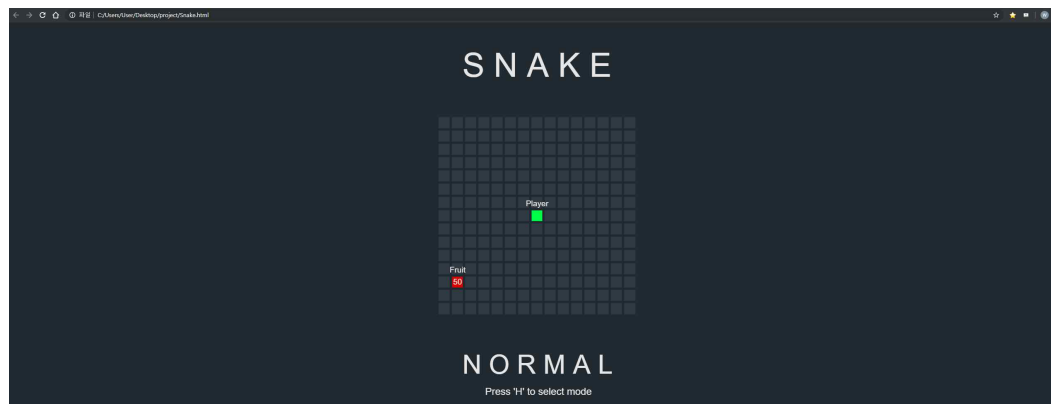
# Map 밖으로 -> 게임오버로 변경



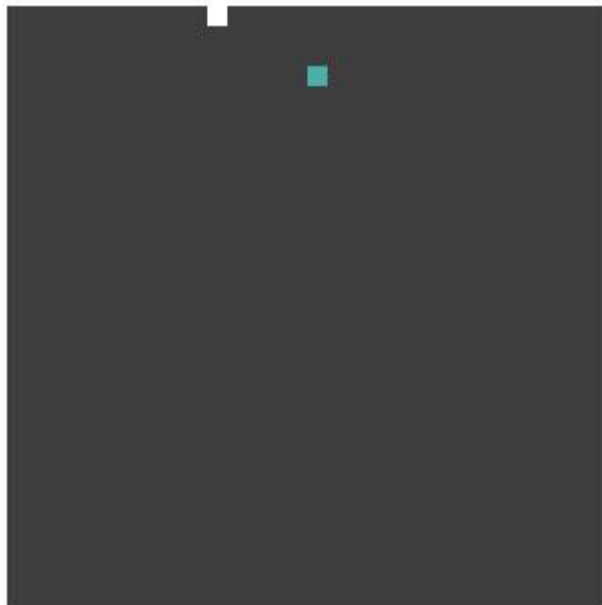


KYUNGSUNG UNIVERSITY  
S I N C E 1 9 5 5

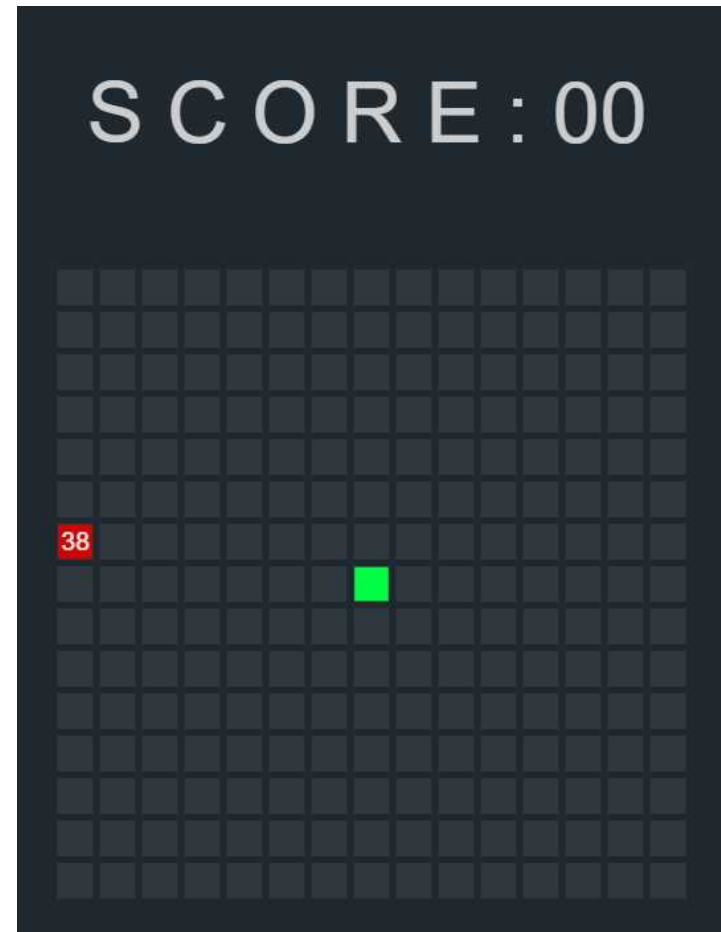
# Window 크기 기반 Canvas 중앙동적배치



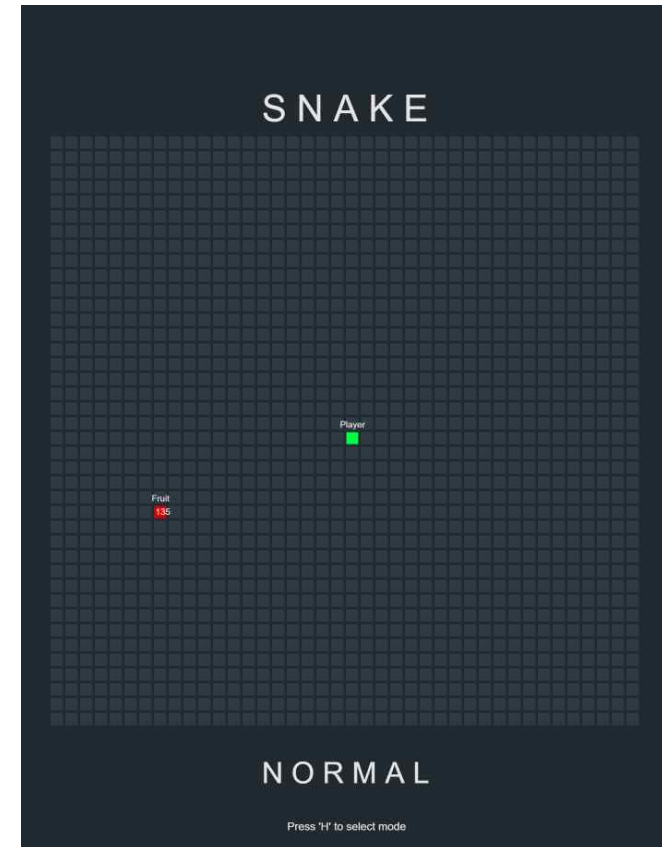
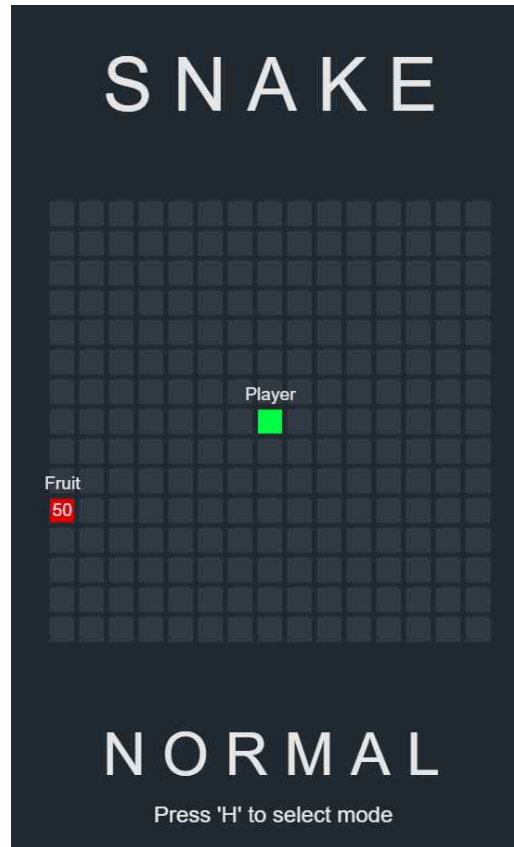
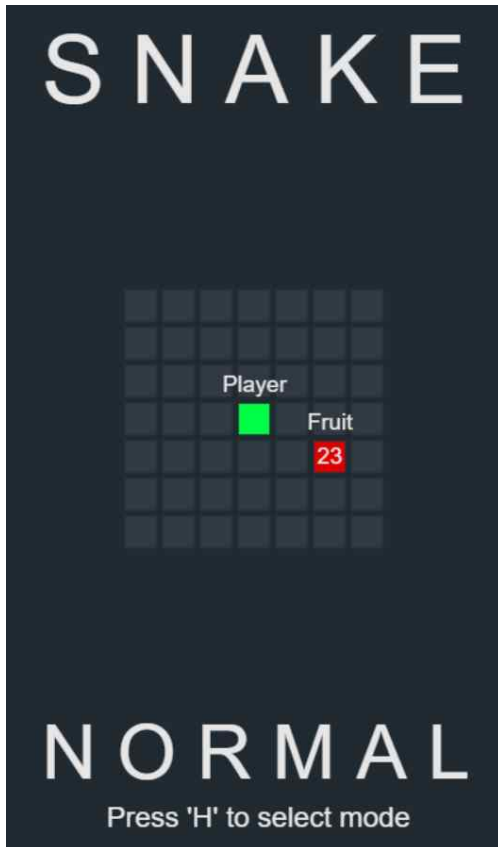
# Map 캔버스 디자인 개선



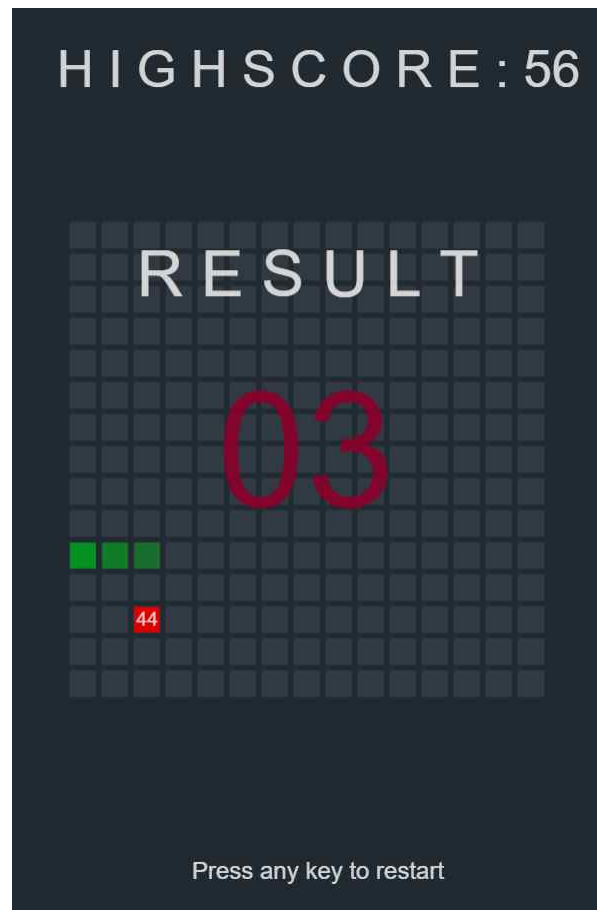
0



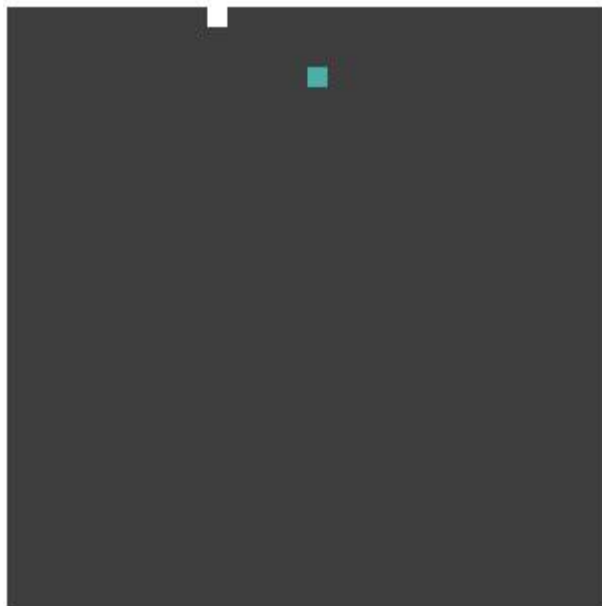
# 타일기반 Map으로 Map크기선택 가능



# 결과화면 추가



# 플레이어 색상 변경



0



# 꼬리 그라데이션 추가

```
if(this.alpha <= 1) {  
    this.alpha = (this.alpha * 1.3 * 100) / 100;  
}
```

# 진행방향과 반대되는 input 무시

수정된 Snake.js 일부

```
this.changeDirection = function() {  
  switch(queue.pop()) {  
    case 'Up':  
      // 진행방향과 반대되는 input 무시  
      if(this.direction == 'Down') break;  
      this.xOffset = 0;  
      this.yOffset = TILE_SIZE * -1;  
      this.direction = 'Up';  
      ....
```



# 기존 pickLocation 함수 개선

수정된 pickLocation() 일부코드

```
....  
// 아이템 위치와 같을때  
if(this.x == gm.getItemXPos() && this.y == gm.getItemYPos()) {  
    this.pickLocation(); // 재귀호출  
    return;  
}  
// 머리 위치와 같을때  
if(this.x == snake.getXPos() && this.y == snake.getYPos()) {  
    this.pickLocation();  
    return;  
}  
....
```

# 키 입력 컨트롤러 버퍼추가

queue.js 코드 일부

```
function Queue() {  
  this.dir = [2];  
  this.index = 0;  
  this.top = 0;  
  // Enqueue  
  this.push = function(direction) {  
    if(this.top >= 2) this.top = this.top - 1;  
    this.dir[this.top] = direction;  
    this.top = this.top + 1;  
  }  
  ...  
}
```

# 과정 - draw함수 최적화

```
// 매 인터벌마다 호출될 함수  
this.draw = function() {  
    //drawMap() 제거  
    //this.drawMap();  
    this.drawFruit();  
    this.drawSnake();  
    this.drawPoop();  
    this.drawItem();  
}
```



## Snake.html 코드 일부

```
...  
<body id="body" onresize="reDraw()">  
...  
  
<script>  
    function reDraw() {  
        map.mapContxt.clearRect(0, 0,  
        map.gameCanvas.width,  
        map.gameCanvas.height);  
        map.drawMap();  
    }  
</script>
```

# 노멀모드 - 먹이카운터(아사)

```
// 먹이 생존 카운터
this.timeCounter = function() {
  // 하드모드면 넘어감
  if(this.isHardModeOn) { return; }

  this.nowTime = new Date().getTime();
  this.timeCounterAddress = setInterval(() => {

    var now = new Date().getTime();
    this.timeLeft = SNAKE_HUNGER_TIME - (now - this.nowTime);

    if(this.timeLeft <= 0) { this.timeLeft = 0; }
  }, 100);
}
```

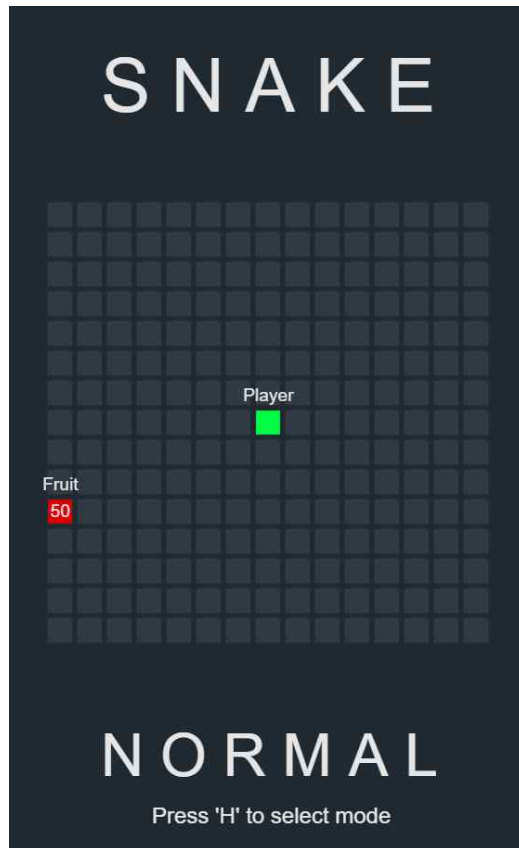
# 노멀모드 - 이동속도 증가

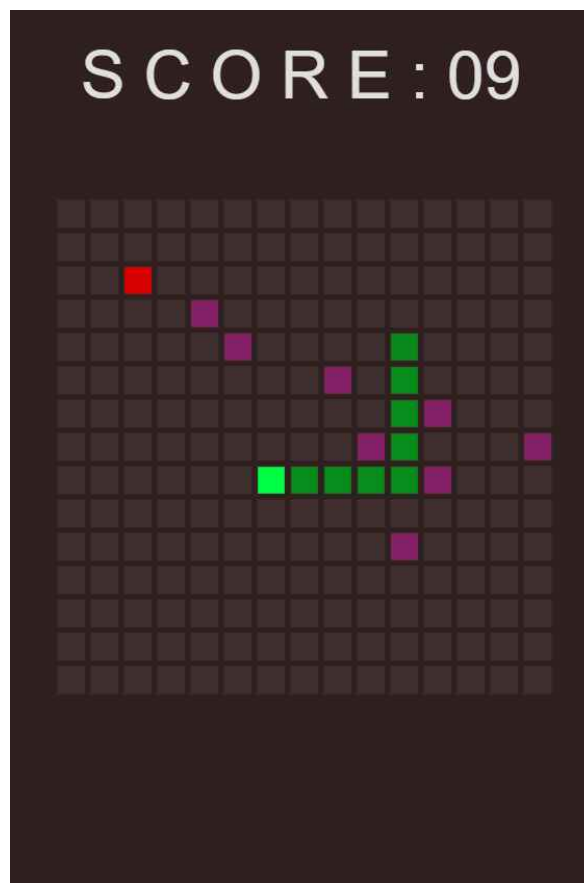
```
var update = function(speed, eatenFruitNum) {  
    interval = window.setInterval(() => {  
        ...../* ui, 플레이어 관리 등 생략함 */.....  
        if(!gm.isHardModeOn && // if문 특성상 하드모드면 뒤의 상태는 체크하지 않음  
            (snake.totalEatenFruit % 5) == 0 &&  
            snake.totalEatenFruit != eatenFruitNum) {  
  
            // 속도 빠르게  
            speed = Math.floor(speed * 0.95);  
            // 현재 인터벌 삭제  
            clearInterval(interval);  
            // 새 인터벌 등록  
            update(speed, snake.totalEatenFruit);  
        }  
    }, speed);  
};
```



KYUNGSUNG UNIVERSITY  
S I N C E 1 9 5 5

# 하드모드 선택시 Map 색상 바뀜





# 하드모드 - 아이템 타임아웃

generateItem() 코드 일부

```
this.generateItem = function() {
```

```
    if(this.isHardModeOn) {  
        window.setTimeout(() => {
```

```
            //일정 시간 후에도 플레이어가 아이템을 먹지 않으면
```

```
            if(this.isItemOnTheMap) {  
                this.itemXPos = null;  
                this.itemYPos = null;  
                this.isItemOnTheMap = false;
```

```
            }  
        }, ITEM_TIMEOUT);
```

```
    }
```

...

...

...




































# 협업툴

---

GitHub

# GitHub

Update README.md	Verified		fee50b8	
 Valium-K committed 19 days ago				
Commits on Sep 26, 2019				
기능 업데이트	Verified		e7ae0ae	
 Valium-K committed 20 days ago				
하드모드 추가, js 분산	Verified		67ee1d5	
 Valium-K committed 20 days ago				
Commits on Sep 25, 2019				
업데이트 항목 갱신	Verified		acc6845	
 Valium-K committed 21 days ago				
게임 업데이트 ...	Verified		b47cda3	
 Valium-K committed 21 days ago				
게임오버 로직 추가 ...	Verified		87652ac	
 Valium-K committed 21 days ago				
0925 수업내용	Verified		457715e	
 Valium-K committed 22 days ago				
Commits on Sep 23, 2019				
아이템, 과일 랜덤 fixed ...	Verified		9c7556e	
 Valium-K committed 23 days ago				
클래스 세분화	Verified		3a0a0d3	
 Valium-K committed 23 days ago				
Commits on Sep 22, 2019				
Update README.md	Verified		e1fc61e	
 Valium-K committed 24 days ago				
기능추가	Verified		0ad8b64	
 Valium-K committed 24 days ago				

# 출처

원본 소스코드: <https://www.youtube.com/watch?v=21eSpMtJwrc>

BGM:

HARD MODE BGM: <https://ko.audioblocks.com/stock-audio/r3-93022.html>

NORMAL MODE BGM: <https://ko.audioblocks.com/stock-audio/gibiduk-93002.html>

TITLE BGM: <https://ko.audioblocks.com/stock-audio/upstream-93031.html>

RESULT BGM: <https://ko.audioblocks.com/stock-audio/isberg-93006.html>

SFX: 본인, 사용 VSTI: Bleep'

감사합니다