AngryBirds


HIGHSCORE: 47600
SCORE: 0

作成スタート

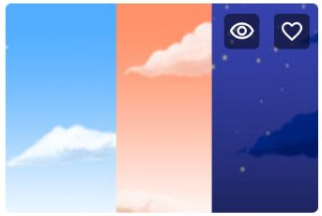
1-24 of **54** results for **2d Background**

Sort by Popularity View Results 24

2d Background × Free Assets ×

DENVZLA ESTUDIO
2D Background
(not enough ratings) | ♥ (171)
FREE Add to My Assets

CPASTEGAME
Free 2D Cartoon Parallax ...
★★★★★ (7) | ♥ (432)
FREE Add to My Assets



SUPER BRUTAL ASSETS
Free 2D Adventure Beach ...
★★★★★ (41) | ♥ (2625)
FREE Add to My Assets

FEON
2D Background Builder - R...
(not enough ratings) | ♥ (18)
FREE Add to My Assets

NEW RELEASE
DIGITAL MOONS
Pixel Skies DEMO Backgro...
(not enough ratings) | ♥ (35)
FREE Add to My Assets

BRETT GREGORY
2D Space Backgrounds
★★★★★ (9) | ♥ (380)
FREE Add to My Assets

BRACKEYS
Free 2D Mega Pack
★★★★★ (47) | ♥ (3806)
FREE Add to My Assets

DINV STUDIO
Dynamic Space Backgrou...
★★★★★ (75) | ♥ (2730)
FREE Add to My Assets

Refine by clear filters

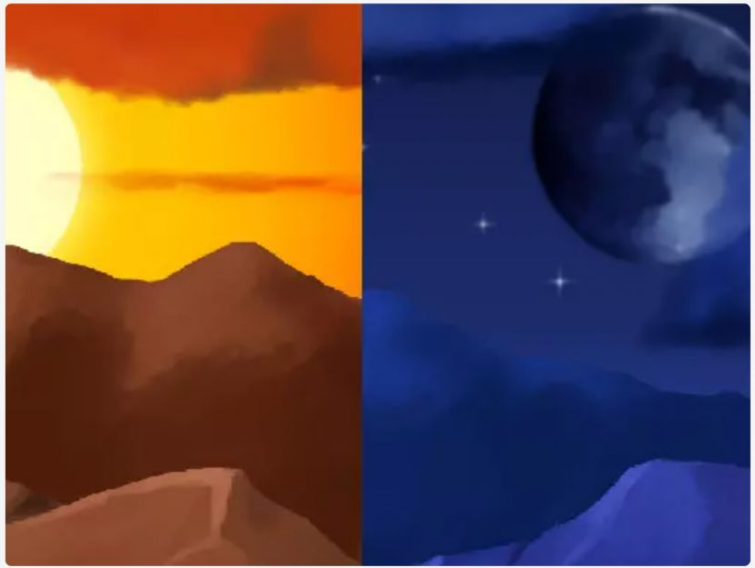
- [ ] Hide Purchased Assets

All Categories

- [ ] 3D (1)
- [ ] 2D (49)
  - [ ] Characters (7)
  - [ ] Environments (26)
  - [ ] Textures & Materials (14)
- [ ] Audio (1)
- [ ] Tools (3)
  - [ ] Level Design (1)
  - [ ] Particles & Effects (1)
  - [ ] Sprite Management (1)

Pricing

- [x] Free Assets (54)



1/5





Painted HQ 2D Forest Medieval Background

Super Brutal Assets

★★★★★ (22) | ♥ (1987)

FREE

214 views in the past week

Open in Unity

N nabeelasad2007

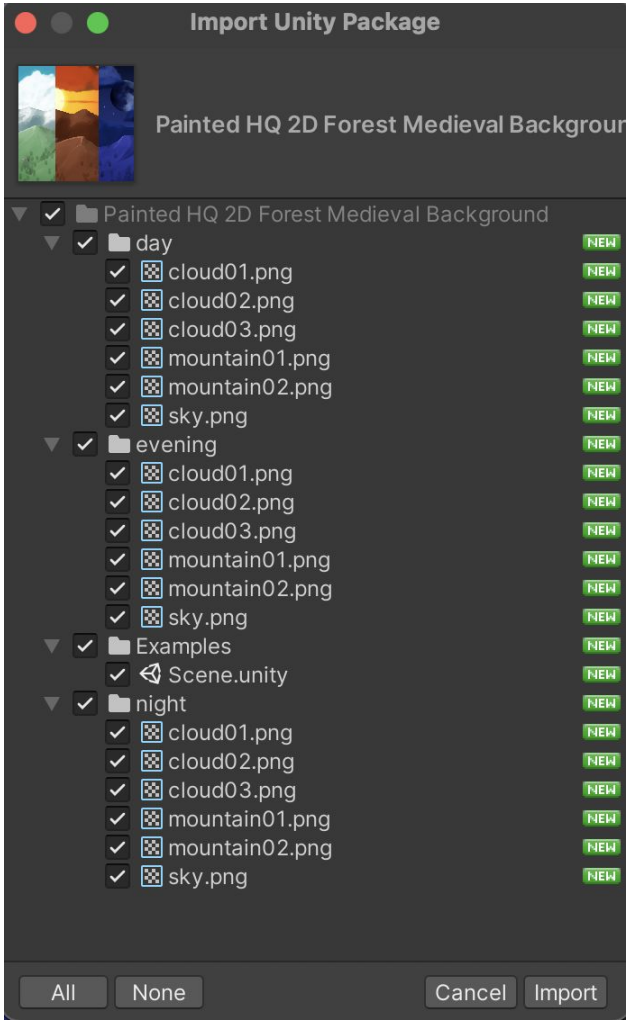
★★★★★ 4 months ago

Good Work!

Really Good for UI based games and for testing purposes.

Read more reviews

License agreement	Standard Unity Asset Store EULA
License type	Extension Asset
File size	10.2 MB
Latest version	1.0


Import Unity Package
Painted HQ 2D Forest Medieval Backgroun
Painted HQ 2D Forest Medieval Background
day
cloud01.png
cloud02.png
cloud03.png
mountain01.png
mountain02.png
sky.png
evening
cloud01.png
cloud02.png
cloud03.png
mountain01.png
mountain02.png
sky.png
Examples
Scene.unity
night
cloud01.png
cloud02.png
cloud03.png
mountain01.png
mountain02.png
sky.png
NEW
All
None
Cancel
Import

1-24 of **158** results for **pixel art**

Sort by Popularity | View Results 24

pixel art × | Free Assets ×

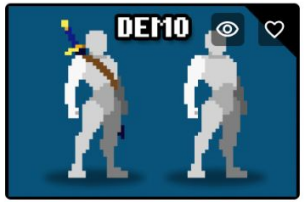
SVEN THOLE
Hero Knight - Pixel Art
★★★★★ (46) | ♥ (2138)
FREE Add to My Assets

CAINOS
Pixel Art Platformer - Villa...
★★★★★ (47) | ♥ (4653)
FREE Add to My Assets

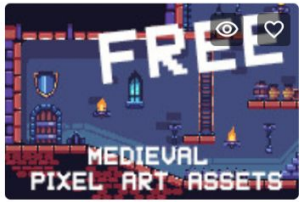
SVEN THOLE
Bandits - Pixel Art
★★★★★ (45) | ♥ (3801)
FREE Add to My Assets

PURCHASED
CAINOS
Pixel Art Top Down - Basic
★★★★★ (38) | ♥ (2538)
FREE

EDER
Free Pixel Art Forest
★★★★★ (14) | ♥ (2409)
FREE Add to My Assets

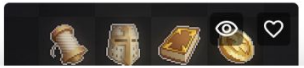


SVEN THOLE
Prototype Hero Demo - Pi...
★★★★★ (9) | ♥ (736)
FREE Add to My Assets



BLACKSPIRE
Medieval pixel art asset F...
★★★★☆ (22) | ♥ (3334)
FREE Add to My Assets

POLYMESHWORLD
FREE Pixel Art Kit
(not enough ratings) | ♥ (248)
FREE Add to My Assets

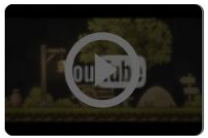


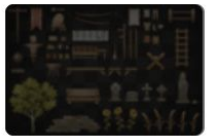
Refine by clear filters

Hide Purchased Assets

All Categories

- 3D (3)
- 2D (139)
  - Characters (55)
  - Environments (47)
  - Fonts (3)
  - GUI (11)
  - Textures & Materials (18)
- Audio (2)
- Templates (4)
- Tools (9)
  - Camera (2)
  - GUI (1)
  - Modeling (1)
  - Painting (3)
  - Sprite Management (2)
- VFX (1)





Pixel Art Platformer - Village Props

Cainos

★★★★★ (47) | ♥ (4653)

FREE

1584 views in the past

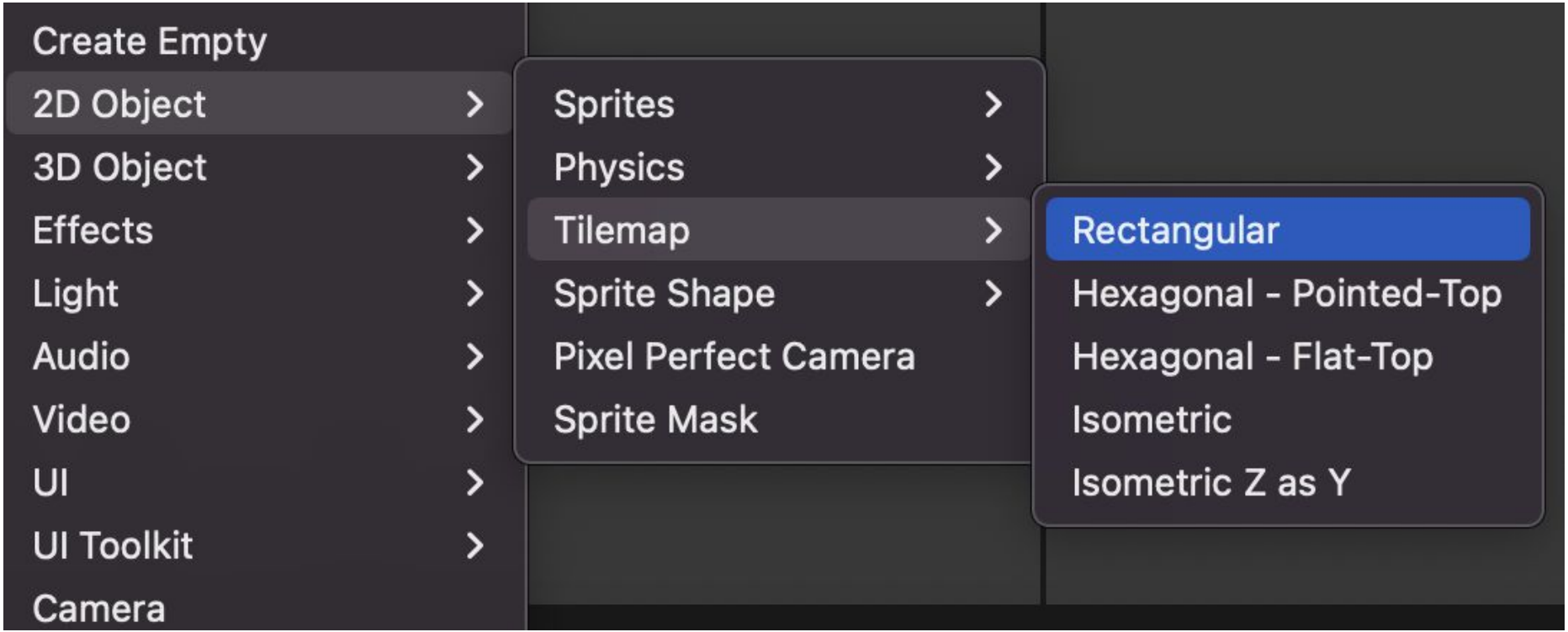
week

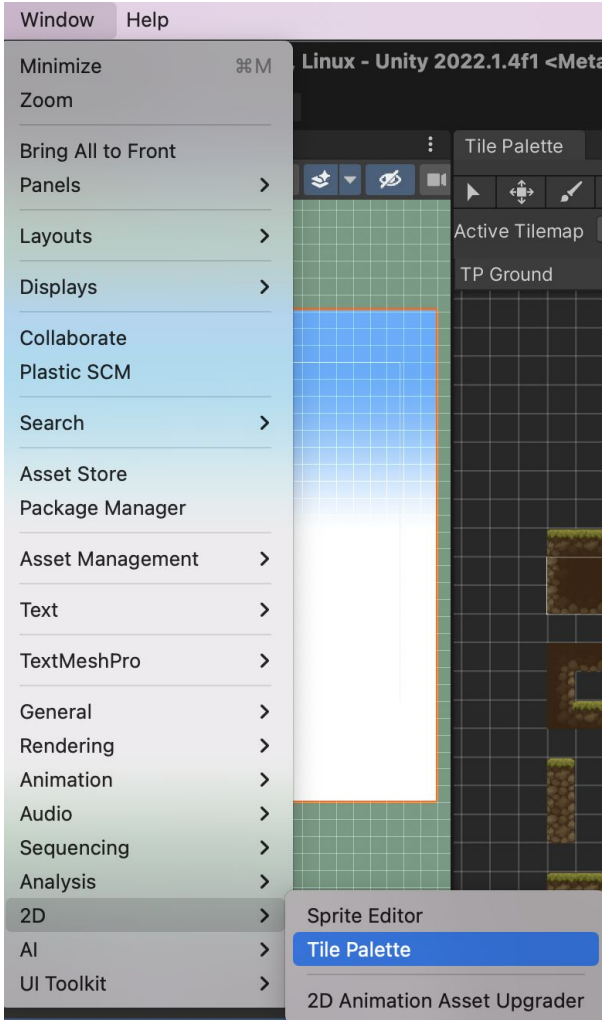
Open in Unity

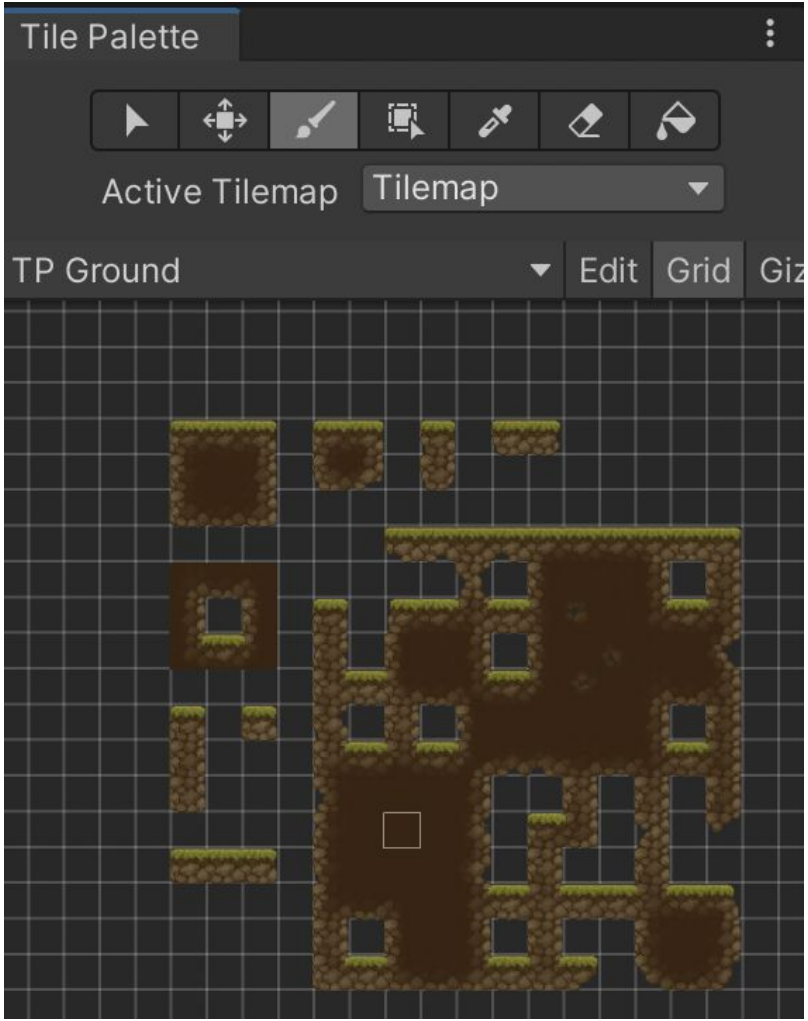
ktorres_65

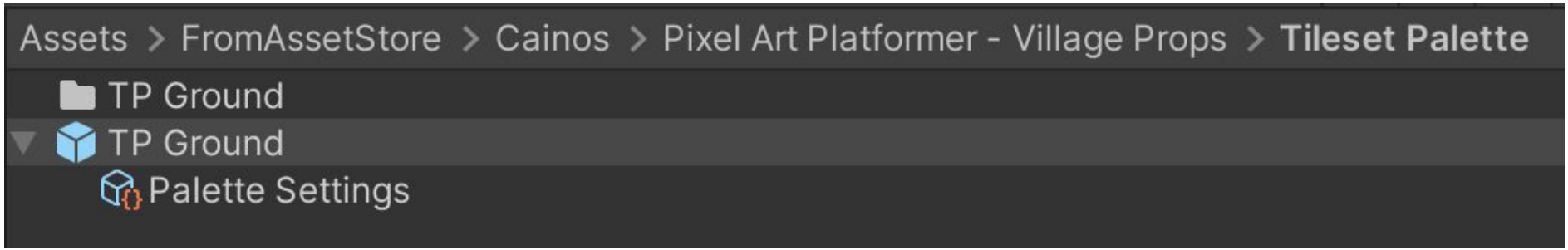
★★★★★ 15 days ago

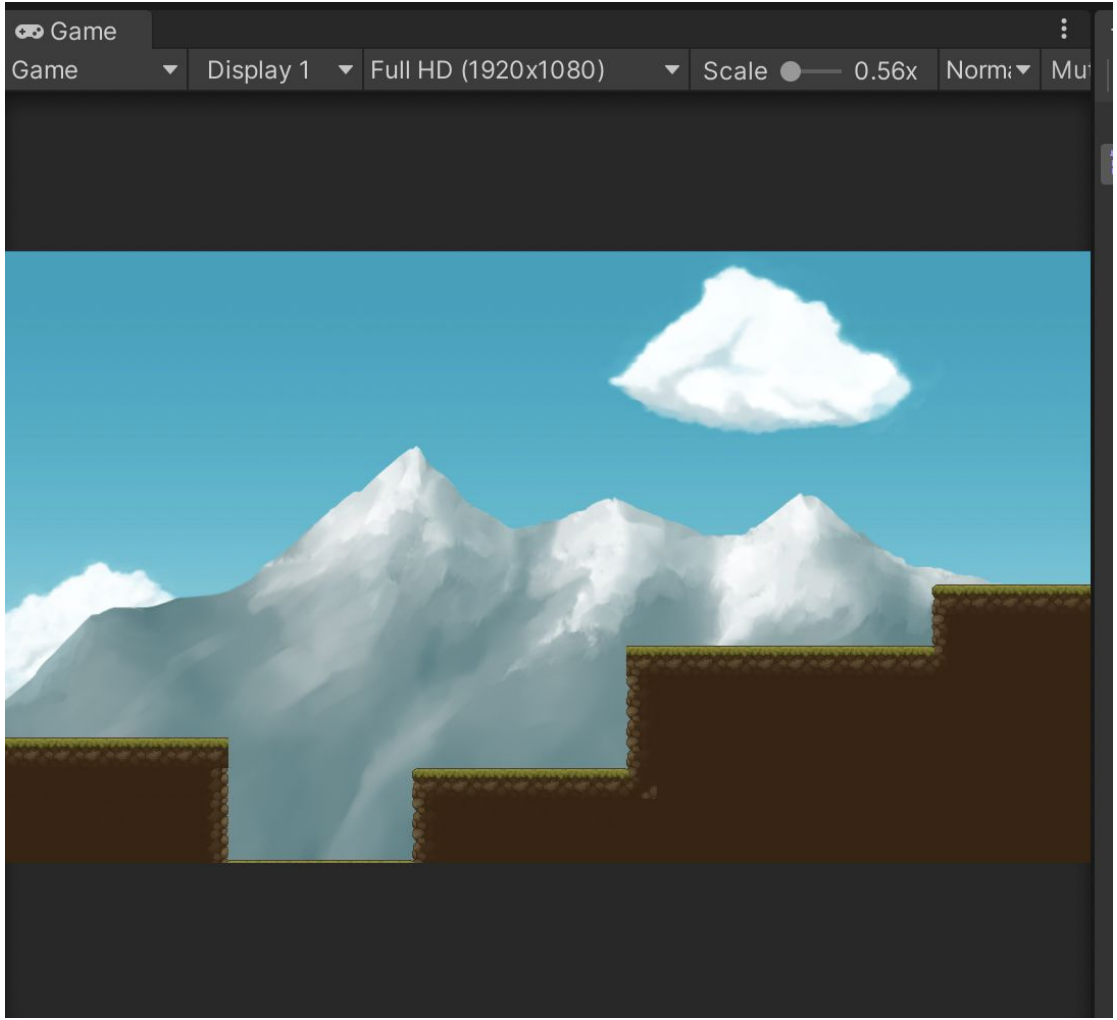
Excellent Selection!

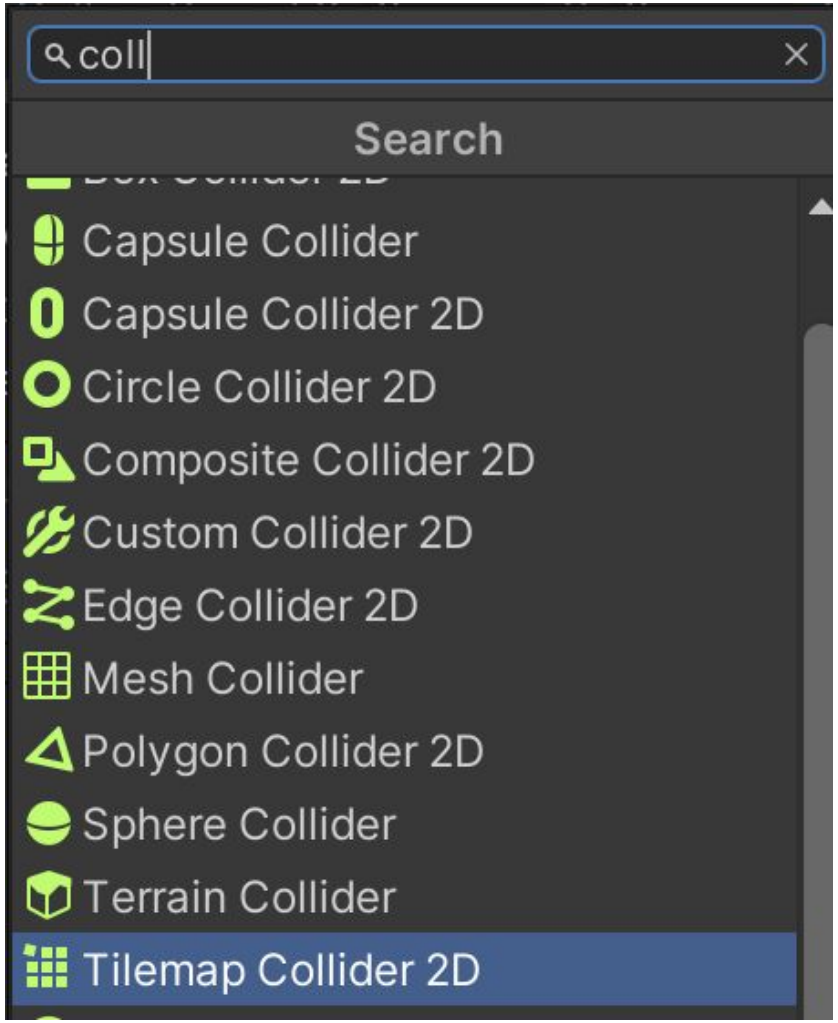

Create Empty
2D Object
3D Object
Effects
Light
Audio
Video
UI
UI Toolkit
Camera
Sprites
Physics
Tilemap
Sprite Shape
Pixel Perfect Camera
Sprite Mask
Rectangular
Hexagonal - Pointed-Top
Hexagonal - Flat-Top
Isometric
Isometric Z as Y


Window
Help
Minimize ⌘M
Zoom
Bring All to Front
Panels
Layouts
Displays
Collaborate
Plastic SCM
Search
Asset Store
Package Manager
Asset Management
Text
TextMeshPro
General
Rendering
Animation
Audio
Sequencing
Analysis
2D
AI
UI Toolkit
Linux - Unity 2022.1.4f1 <Meta
Tile Palette
Active Tilemap
TP Ground
Sprite Editor
Tile Palette
2D Animation Asset Upgrader

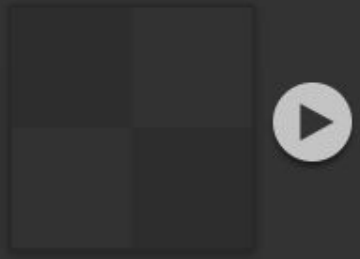

Tile Palette
Active Tilemap
Tilemap
TP Ground
Edit
Grid
Giz


Assets > FromAssetStore > Cainos > Pixel Art Platformer - Village Props > Tileset Palette
TP Ground
TP Ground
Palette Settings

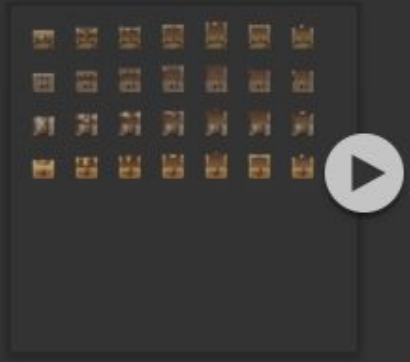

Game
Game
Display 1
Full HD (1920x1080)
Scale
0.56x


coll
Search
Capsule Collider
Capsule Collider 2D
Circle Collider 2D
Composite Collider 2D
Custom Collider 2D
Edge Collider 2D
Mesh Collider
Polygon Collider 2D
Sphere Collider
Terrain Collider
Tilemap Collider 2D

Assets > AssetStore > Cainos > Pixel Art Platformer - Village Props > **Texture**



TX Background Gr...



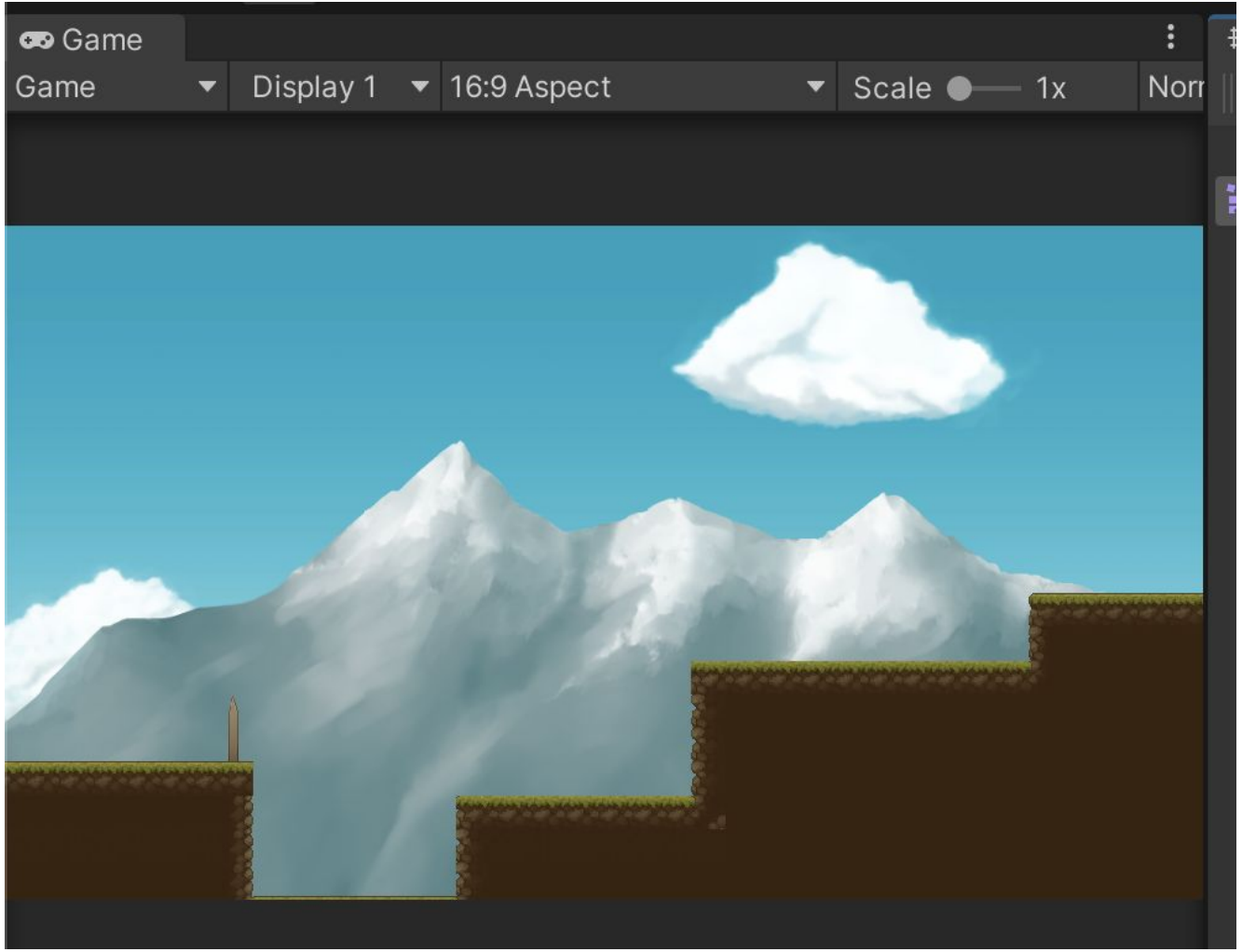
TX Chest Animati...

TX Particle Flame

TX Tileset Ground

TX Village Props


TX Village Props ...


Game
Game
Display 1
16:9 Aspect
Scale
1x



Animal Cube (Cat Series) - 2D Asset

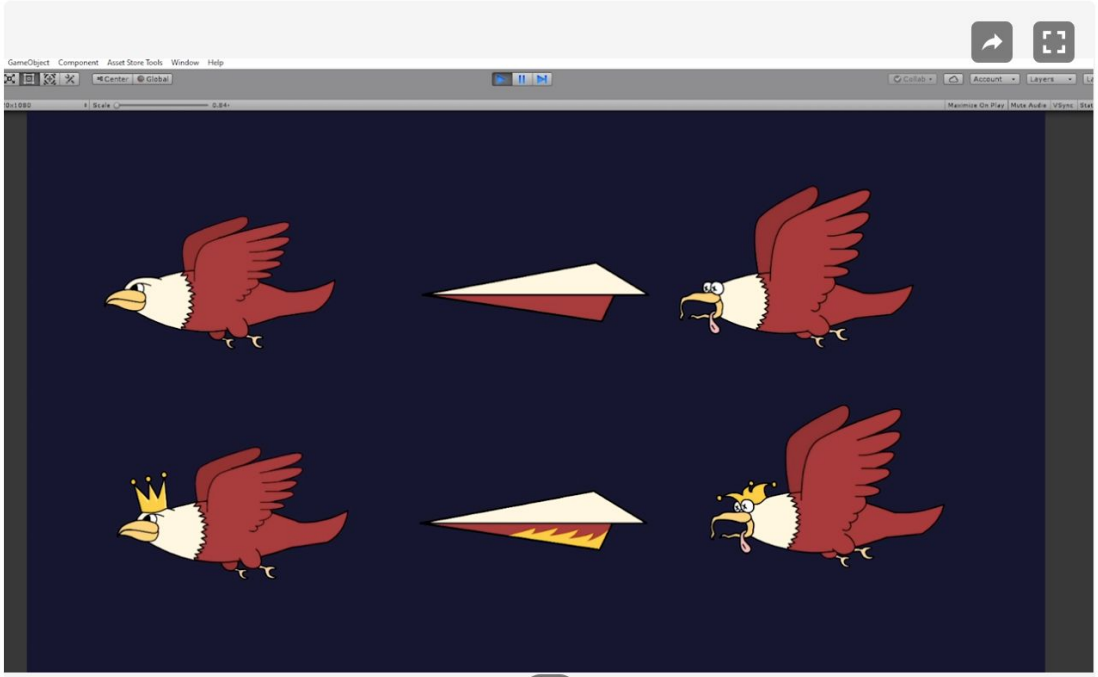
Hisa Games (not enough ratings) | (18)

FREE

29 views in the past week

Add to My Assets

License agreement	Standard Unity Asset Store EULA
License type	Extension Asset
File size	3.6 MB
Latest version	1.0
Latest release date	Dec 23, 2021
Supported Unity versions	2020.3.14 or higher







Cartoon Eagle 2D

SR Studios Kerala

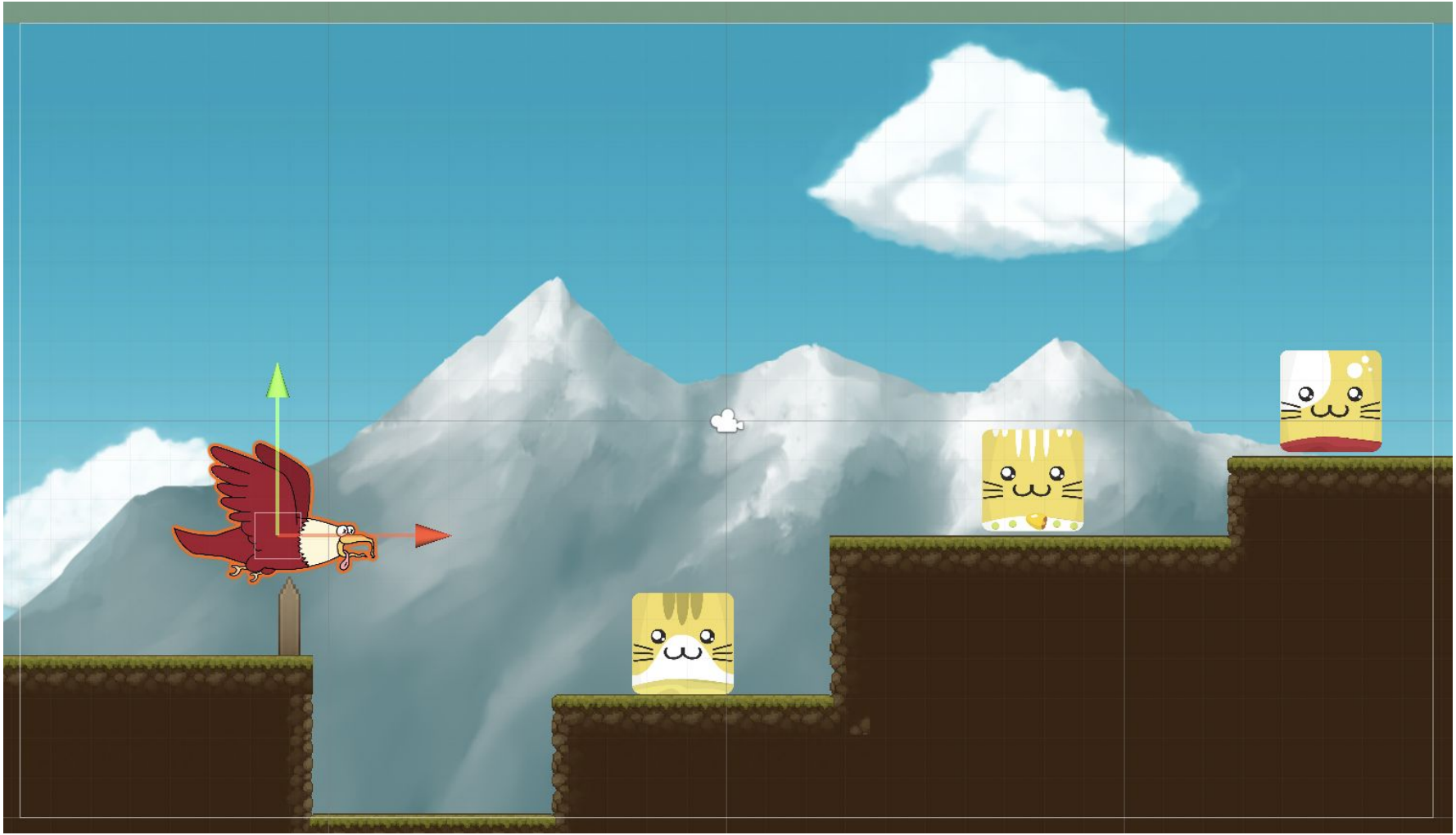
(not enough ratings) | (70)

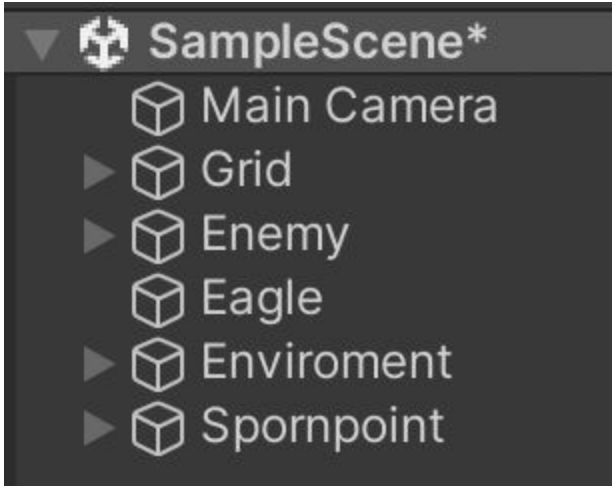
FREE

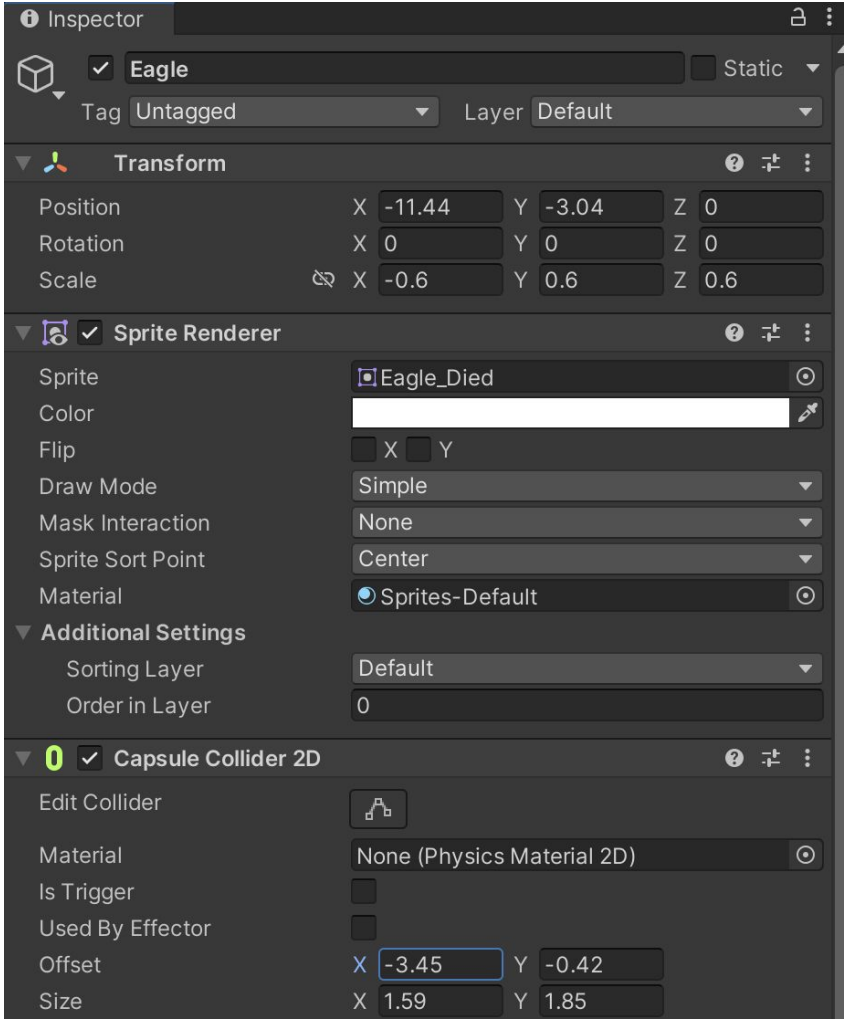
77 views in the past week

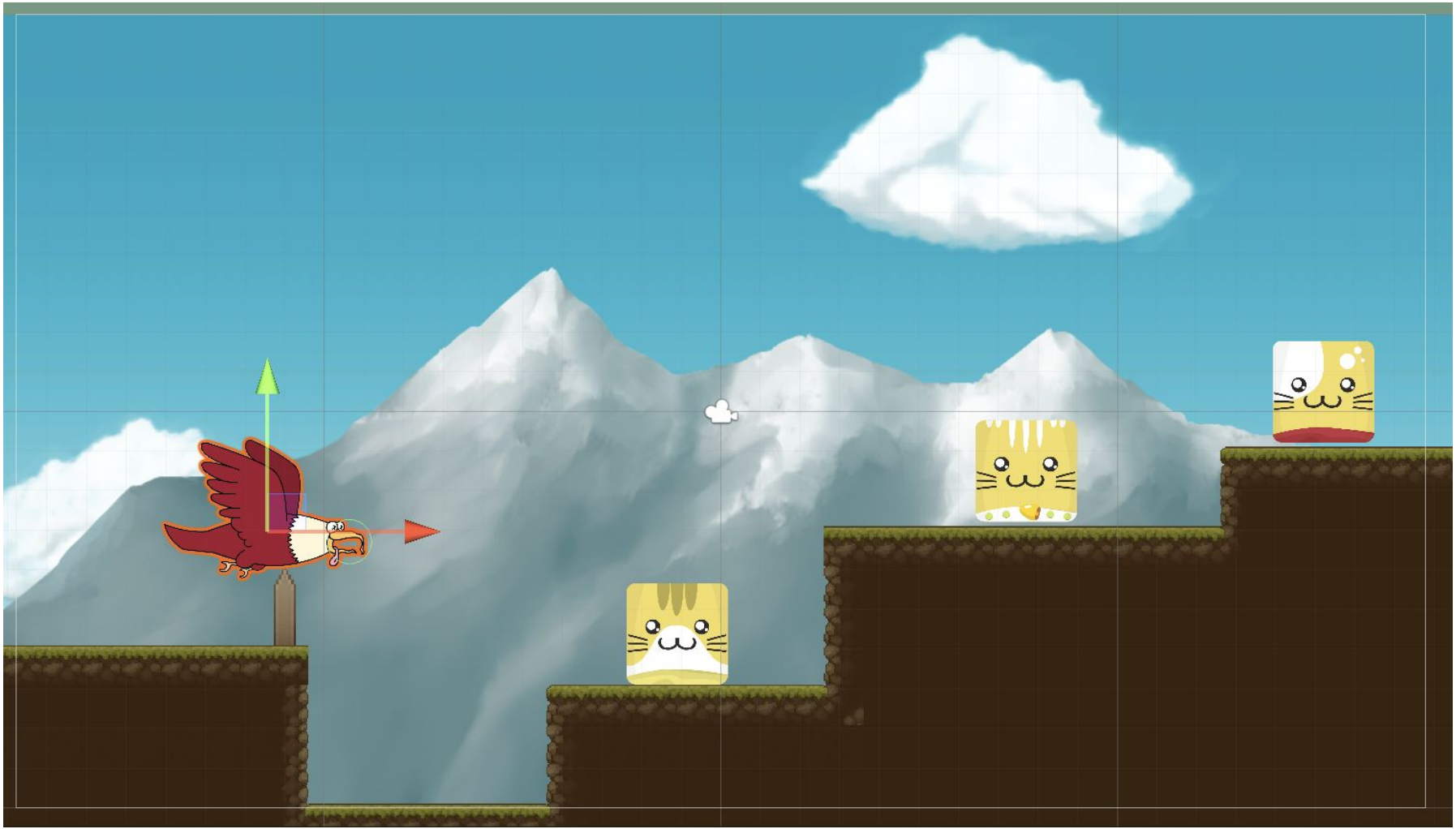
Add to My Assets

License agreement	Standard Unity Asset Store EULA
License type	Extension Asset
File size	1.5 MB
Latest version	1.0
Latest release date	Jun 15, 2021
Supported Unity versions	2019.2.21 or higher
Support	Visit site

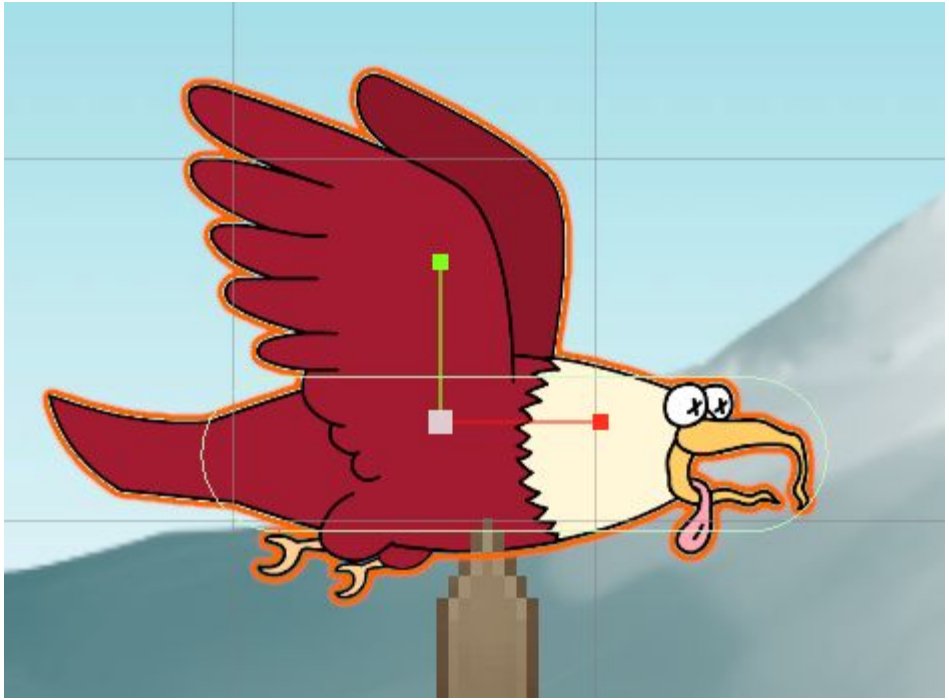



SampleScene*
Main Camera
Grid
Enemy
Eagle
Enviroment
Spornpoint


Inspector
Eagle
Static
Tag Untagged
Layer Default
Transform
Position X -11.44 Y -3.04 Z 0
Rotation X 0 Y 0 Z 0
Scale X -0.6 Y 0.6 Z 0.6
Sprite Renderer
Sprite Eagle_Died
Color
Flip X Y
Draw Mode Simple
Mask Interaction None
Sprite Sort Point Center
Material Sprites-Default
Additional Settings
Sorting Layer Default
Order in Layer 0
Capsule Collider 2D
Edit Collider
Material None (Physics Material 2D)
Is Trigger
Used By Effector
Offset X -3.45 Y -0.42
Size X 1.59 Y 1.85



キャラを操作するスクリプト



Inspector

Eagle — Static

Tag: Untagged — Layer: Default

Transform

Position	X	-11.44	Y	-3.04	Z	0
Rotation	X	0	Y	0	Z	0
Scale	X	-0.6	Y	0.6	Z	0.6

Sprite Renderer

Capsule Collider 2D

Edit Collider

Material: None (Physics Material 2D)

Is Trigger

Used By Effector

Offset	X	-3.45	Y	-0.42
Size	X	1.59	Y	1.85

Direction: Horizontal

Info

Attached Body: None (Rigidbody 2D)

Friction: 0.4

Bounciness: 0

Shape Count

Bounds

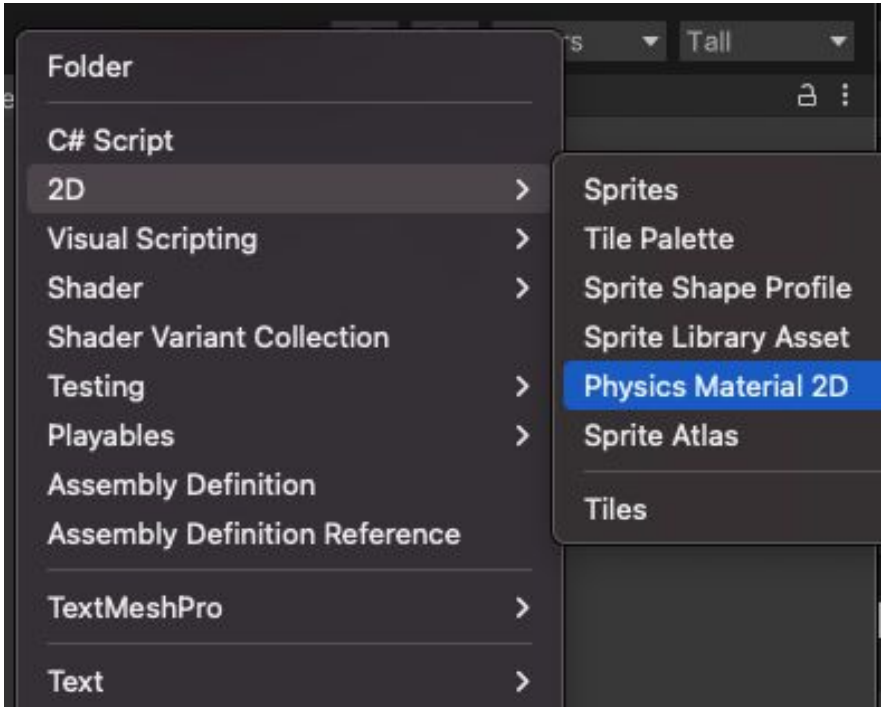
Contacts

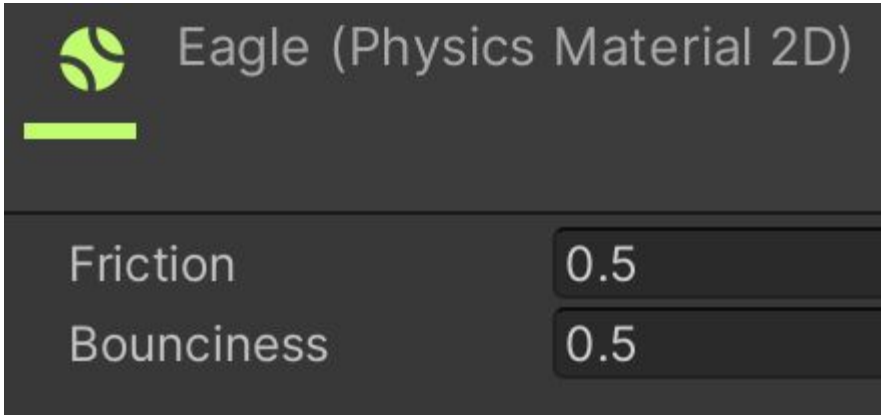
ri

Search

Rigidbody

Rigidbody 2D


Tall
Folder
C# Script
2D
Visual Scripting
Shader
Shader Variant Collection
Testing
Playables
Assembly Definition
Assembly Definition Reference
TextMeshPro
Text
Sprites
Tile Palette
Sprite Shape Profile
Sprite Library Asset
Physics Material 2D
Sprite Atlas
Tiles

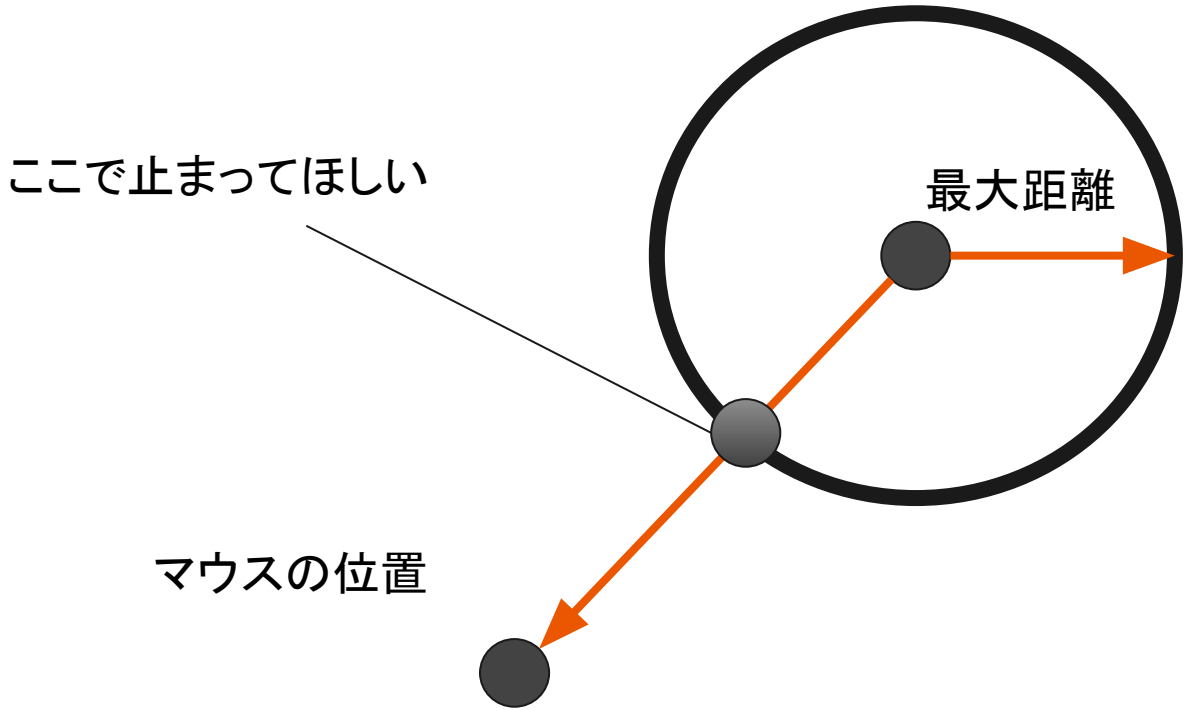

Eagle (Physics Material 2D)
Friction
0.5
Bounciness
0.5

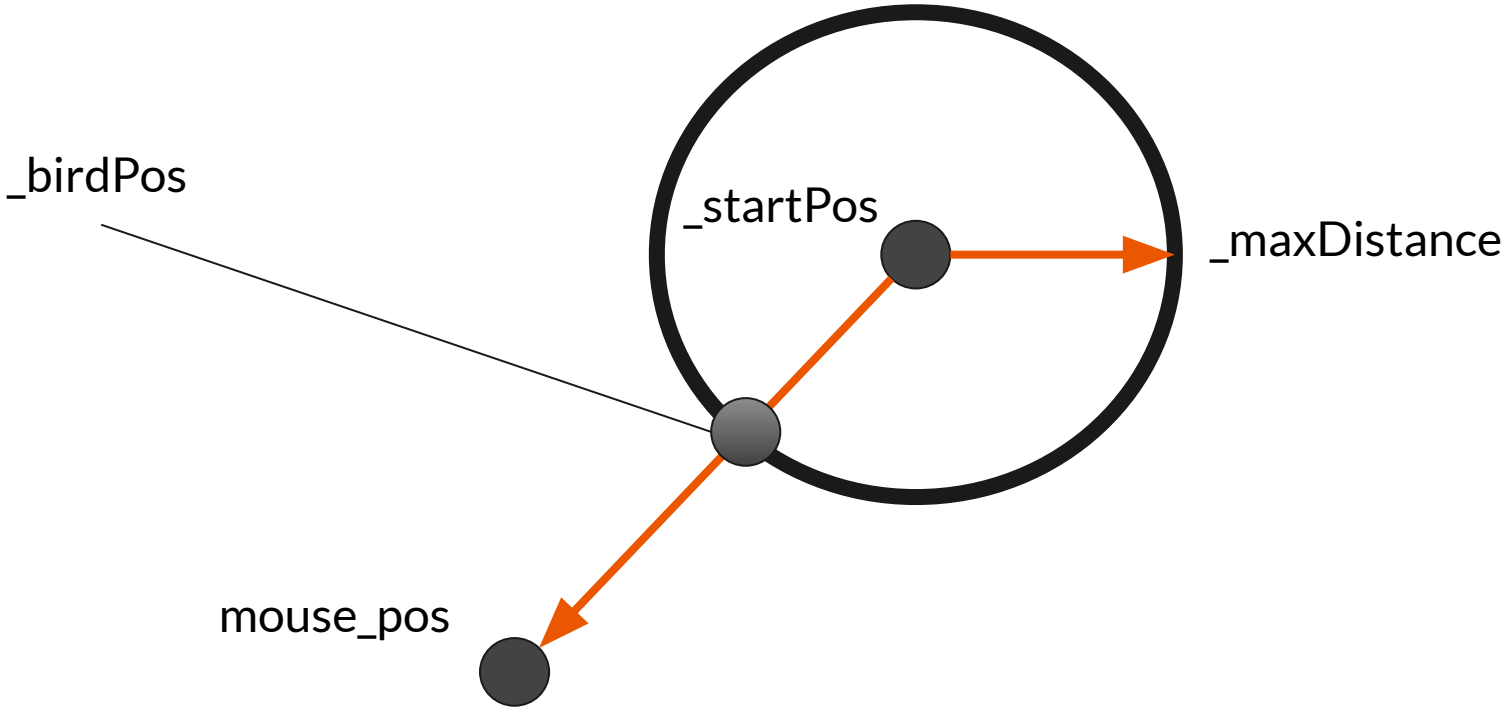
キャラの位置をどう決める？

```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class EagleCtrl: MonoBehaviour
{
    Rigidbody2D _rb2d;

    void Start()
    {
        TryGetComponent( out _rb2d);
        _rb2d.isKinematic = true;//物理演算を切っておく
    }

    private void OnMouseDrag()
    {
        Vector2 mouse_pos = Camera.main.ScreenToWorldPoint(Input.mousePosition);//マウスの位置
        transform.position = mouse_pos;//キャラの位置
    }
}
```

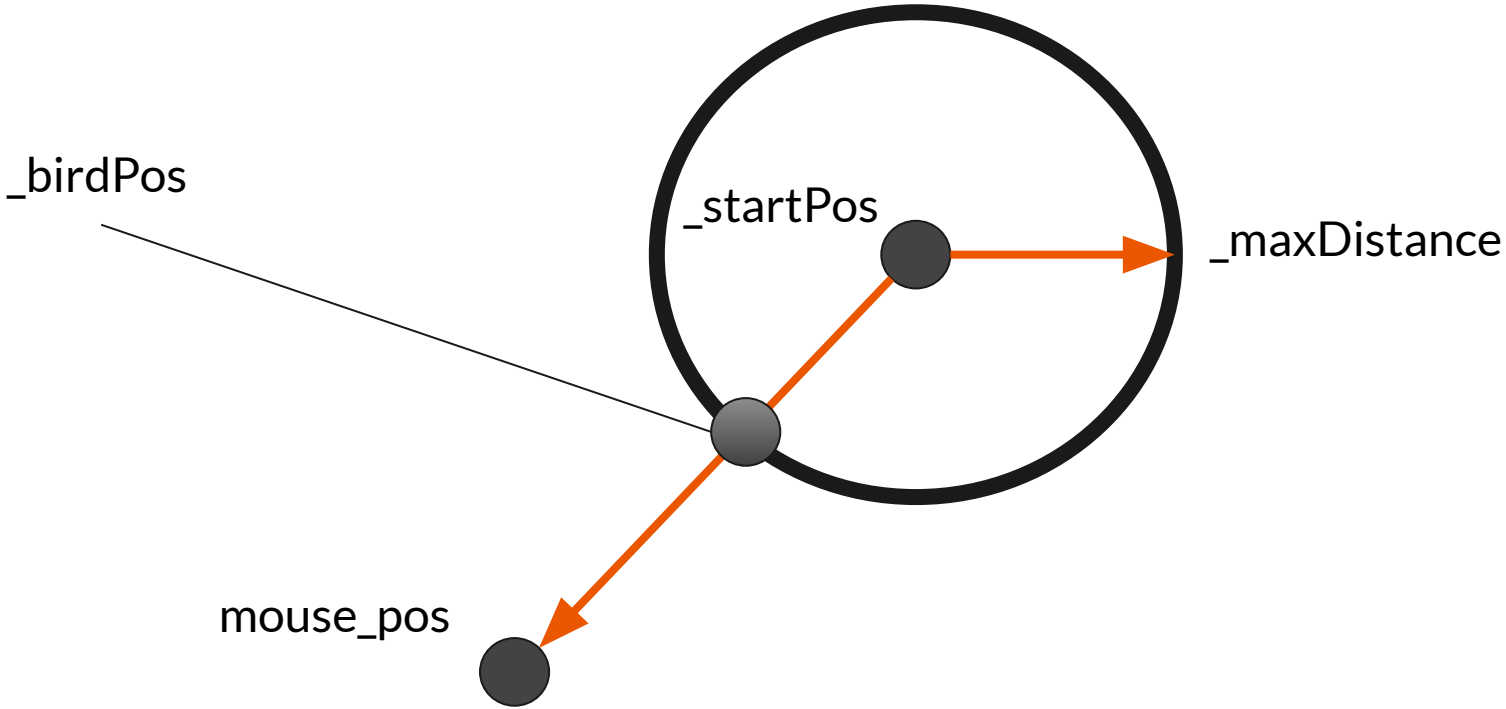
実行、操作キャラがマウスに追従することを確認

操作キャラに制限を加える


ここで止まってほしい
最大距離
マウスの位置


_birdPos
_startPos
_maxDistance
mouse_pos

```
public class EagleCtrl: MonoBehaviour
{
    Rigidbody2D _rb2d;
    Vector2 _startPos, _birdPos;

    void Start()
    {
        _startPos = Vector2.zero;//初期化
        _birdPos  = Vector2.zero;//初期化

        TryGetComponent( out _rb2d);
        _rb2d.isKinematic = true;//物理演算を切っておく

        _startPos = transform.position;//開始位置

    }

    private void OnMouseDrag()
    {
        Vector2 mouse_pos = Camera.main.ScreenToWorldPoint(Input.mousePosition);//マウスの位置
        _birdPos = mouse_pos;
        Vector2 flyDirection = _startPos - mouse_pos;//マウスの位置から見た開始位置のベクトル
        float sToM_Distance = flyDirection.magnitude;//マウスとキャラの距離
    }
}
```


_birdPos
_startPos
_maxDistance
mouse_pos

```
public class EagleCtrl: MonoBehaviour
{
    Rigidbody2D _rb2d;
    Vector2 _startPos, _birdPos;
    float _maxDistance = 3f;//引っ張る最大距離
    void Start()
    {
        _startPos = Vector2.zero;//初期化
        _birdPos  = Vector2.zero;//初期化
        TryGetComponent( out _rb2d);
        _rb2d.isKinematic = true;//物理演算を切っておく
        _startPos = transform.position;//開始位置
    }

    private void OnMouseDrag()
    {
        Vector2 mouse_pos = Camera.main.ScreenToWorldPoint(Input.mousePosition);//マウスの位置
        _birdPos = mouse_pos;
        Vector2 flyDirection = _startPos - mouse_pos;//マウスの位置から見た開始位置のベクトル
        float sToM_Distance = flyDirection.magnitude;//マウスとキャラの距離
        if (sToM_Distance > _maxDistance)
        {
            Vector2 _flyDirectNorm = (-1) * flyDirection.normalized;//正規化して方向だけ求めて
            _birdPos = _startPos + _maxDistance * _flyDirectNorm;//最大距離まで伸ばして、開始地点に足す
        }
        transform.position = _birdPos;
    }
}
```

実行、操作キャラが最大距離までしか移動しないことを確認

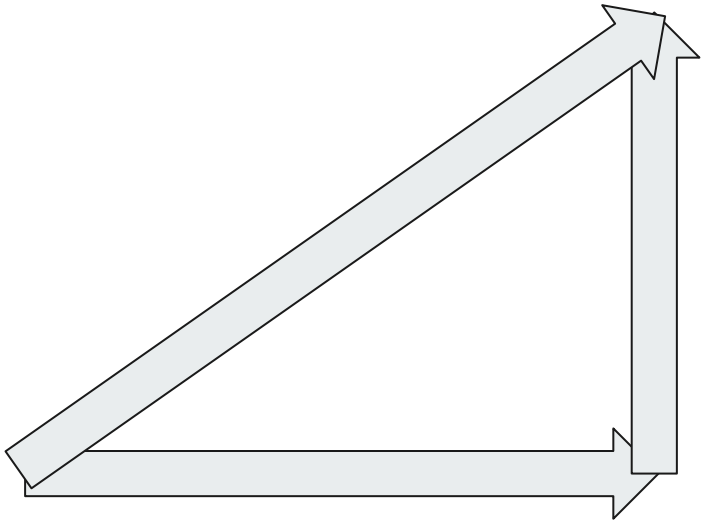
ベクトル

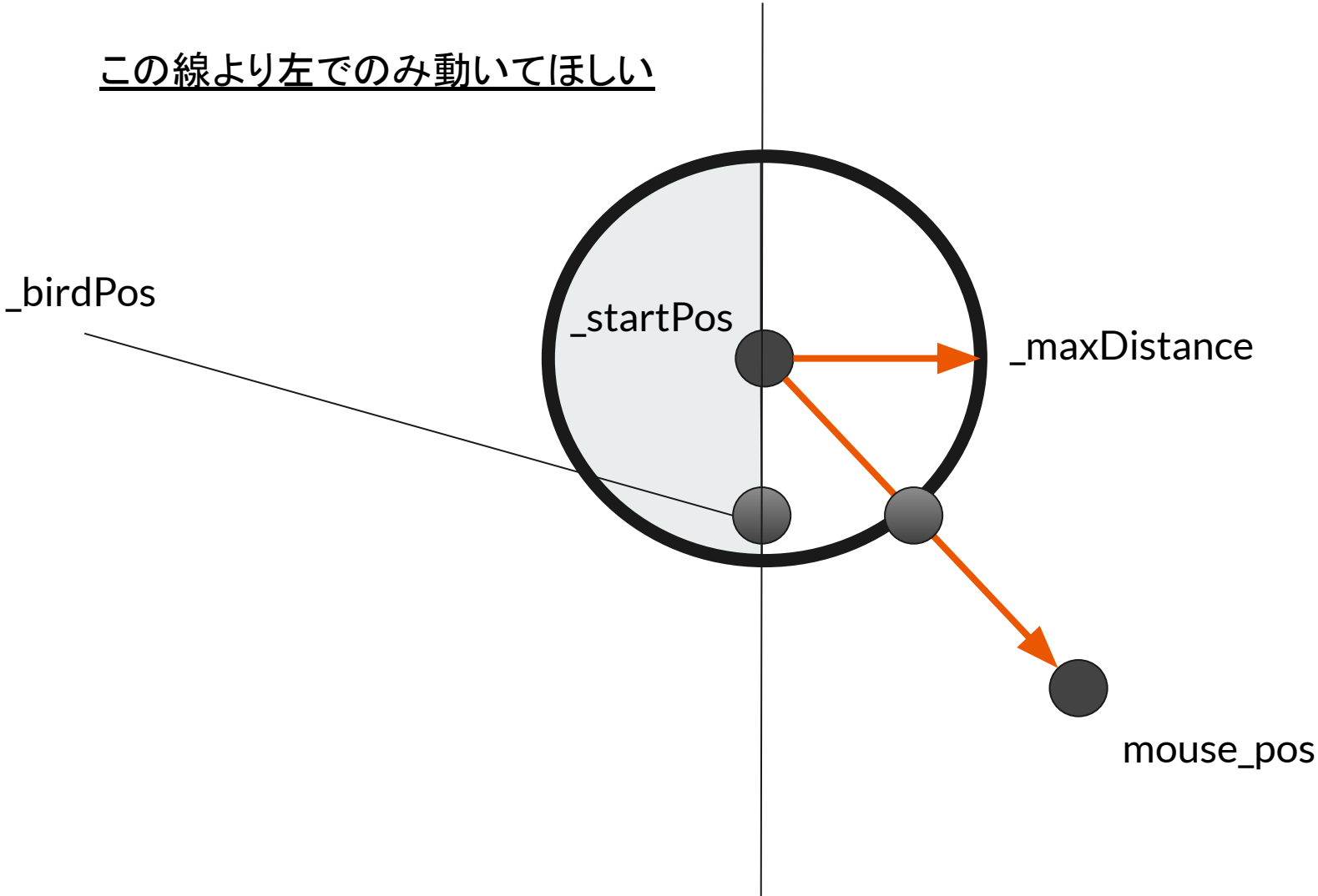
UFOキャッチャー

開始位置

$\vec{a}$

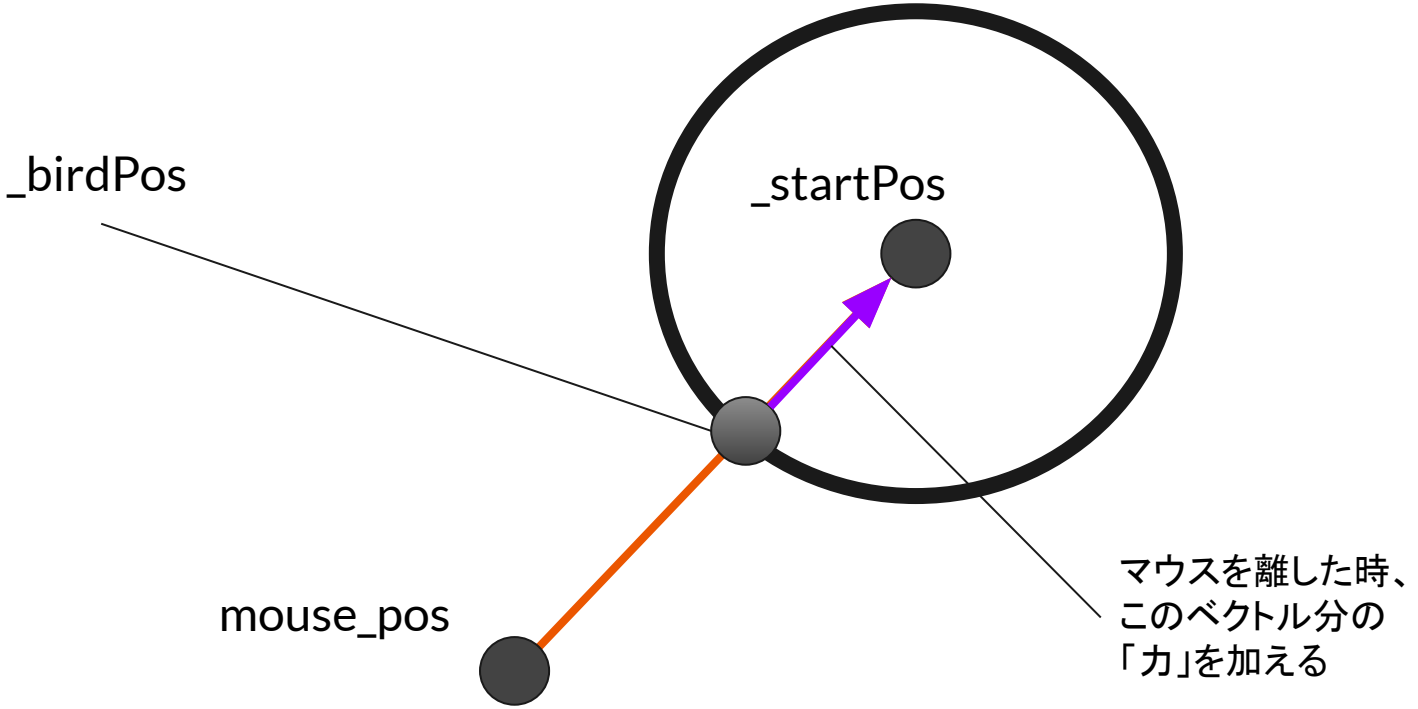
$\vec{b}$




この線より左でのみ動いてほしい
_birdPos
_startPos
_maxDistance
mouse_pos

```
private void OnMouseDrag()
{
    Vector2 mouse_pos = Camera.main.ScreenToWorldPoint(Input.mousePosition);//マウスの位置
    _birdPos = mouse_pos;
    Vector2 flyDirection = _startPos - mouse_pos;//マウスの位置から見た開始位置のベクトル
    float sToM_Distance = flyDirection.magnitude;//マウスとキャラの距離
    if (sToM_Distance > _maxDistance)
    {
        Vector2 _flyDirectNorm = (-1) * flyDirection.normalized;//正規化して方向だけ求めて
        _birdPos = _startPos + _maxDistance * _flyDirectNorm;//最大距離まで伸ばして、開始地点に足す
    }
    if (_startPos.x < _birdPos.x)  _birdPos.x = _startPos.x; //開始位置より右に行かないようにする
    transform.position = _birdPos;
}
```

操作キャラを飛ばす



```
Vector2 _flyDirection;//飛ばす方向
```

```
private void OnMouseDrag()//マウスをドラッグしてる時
{
    Vector2 mouse_pos = Camera.main.ScreenToWorldPoint(Input.mousePosition);//マウスの位置
    _birdPos = mouse_pos;
    _flyDirection = _startPos - mouse_pos;//マウスの位置から見た開始位置のベクトル
    float sToM_Distance = _flyDirection.magnitude;//マウスとキャラの距離
    if (sToM_Distance > _maxDistance)
    {
        Vector2 _flyDirectNorm = (-1) * _flyDirection.normalized;//正規化して方向だけ求めて
        _birdPos = _startPos + _maxDistance * _flyDirectNorm;//最大距離まで伸ばして、開始地点に足す
    }
    if (_startPos.x < _birdPos.x)  _birdPos.x = _startPos.x; //開始位置より右に行かないようにする
    transform.position = _birdPos;
}
```

```
float _flyForce = 5f;
private void OnMouseUp()
{
    _rb2d.isKinematic = false;//物理演算を行う
    _rb2d.AddForce(_flyForce * _flyDirection, ForceMode2D.Impulse);//飛ばした瞬間だけ外力を加える
}
```

実行、操作キャラが飛ばせることを確認

飛ばした直後から当たり判定が起こり、キャラが止まってしまう

解決策例：

飛ばす前にColliderの設定を「isTrigger」をtrueにしておき、
手を離した時かつ、開始地点より右にいった時に「isTrigger」をfalseにする

```
Rigidbody2D _rb2d;
Collider2D _c2d;
Vector2 _startPos, _birdPos;//開始位置、鳥の位置
Vector2 _flyDirection;//飛ばす方向
float _maxDistance = 3f;//引っ張る最大距離
bool _isFlied;//飛ばしたらtrue
```

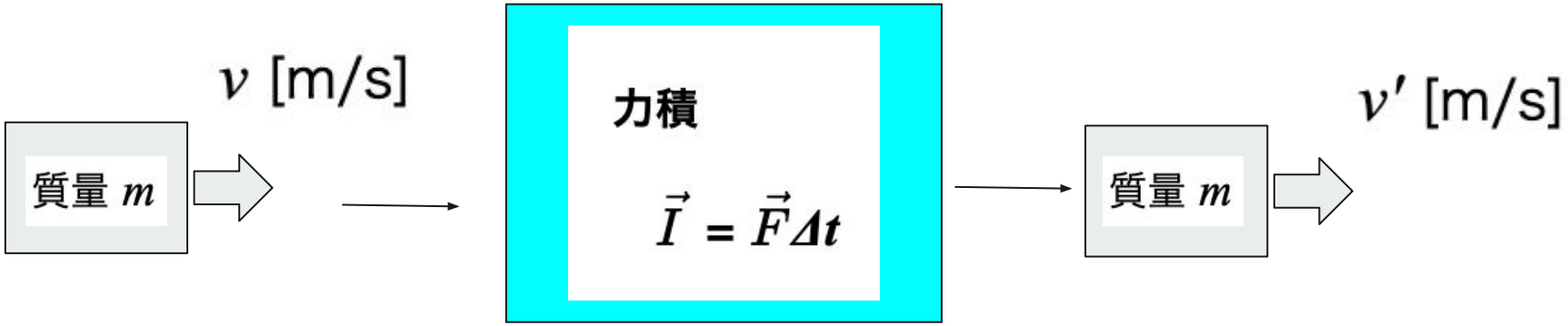
```
void Start()
{
    _startPos = Vector2.zero;//初期化
    _birdPos  = Vector2.zero;//初期化
    TryGetComponent( out _rb2d);
    TryGetComponent(out _c2d);
    _rb2d.isKinematic = true;//物理演算を切っておく
    _c2d.isTrigger = true;//トリガー判定をオンにしておく
    _startPos = transform.position;//開始位置
    _isFlied = false;//飛ばす前
}
```

```
private void OnMouseDrag()//マウスをドラッグしてる時
{
    if (_isFlied) return;//飛ばしたなら　操作できないようにする
    Vector2 mouse_pos = Camera.main.ScreenToWorldPoint(Input.mousePosition);//マウスの位置
    _birdPos = mouse_pos;
    _flyDirection = _startPos - mouse_pos;//マウスの位置から見た開始位置のベクトル
    float sToM_Distance = _flyDirection.magnitude;//マウスとキャラの距離
    if (sToM_Distance > _maxDistance)
    {
        Vector2 _flyDirectNorm = (-1) * _flyDirection.normalized;//正規化して方向だけ求めて
        _birdPos = _startPos + _maxDistance * _flyDirectNorm;//最大距離まで伸ばして、開始地点に足す
    }
    if (_startPos.x < _birdPos.x)  _birdPos.x = _startPos.x; //開始位置より右に行かないようにする
    transform.position = _birdPos;
}
```

```
float _flyForce = 5f;
private void OnMouseUp()
{
    if (_isFlied) return;//飛ばしたなら　操作できないようにする
    _isFlied = true;//「飛ばした」状態にする
    _rb2d.isKinematic = false;//物理演算を行う
    _rb2d.AddForce(_flyForce * _flyDirection, ForceMode2D.Impulse);//飛ばした瞬間だけ外力を加える
}
private void Update()
{
    if (_startPos.x < transform.position.x && _isFlied)//現在地が開始地点より右に行き、かつ「飛ばした」状態なら
    {
        _c2d.isTrigger = false;
    }
}
```

ちなみに

「ForceMode　Impulse 」モードとは「力積を加える計算のこと」

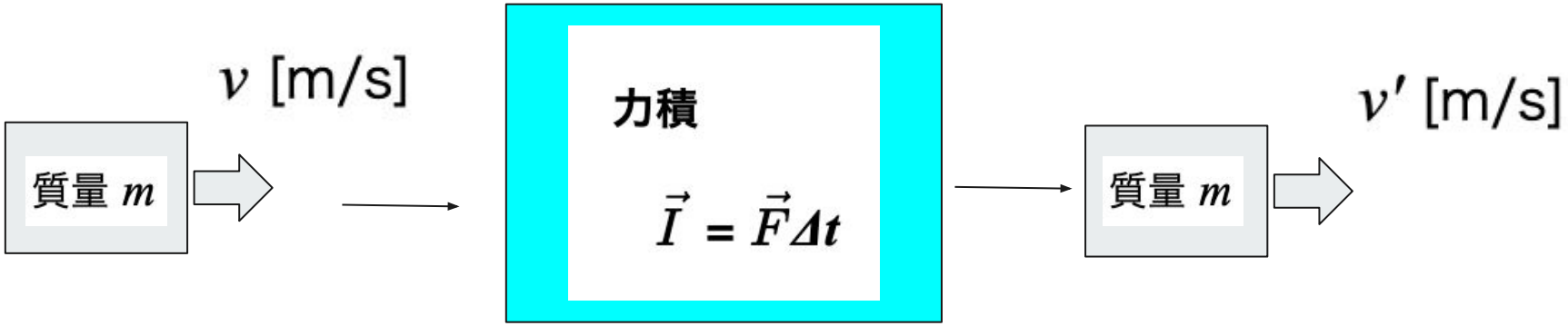


物体の運動量の変化は、その間に受けた力積に等しい

$$m\vec{v}' - m\vec{v} = \vec{F}\Delta t$$

ちなみに

「ForceMode　Impulse 」モードとは「力積を加える計算のこと」



物体の運動量の変化は、その間に受けた力積に等しい

$$m\vec{v}' - m\vec{v} = \vec{F}\Delta t$$

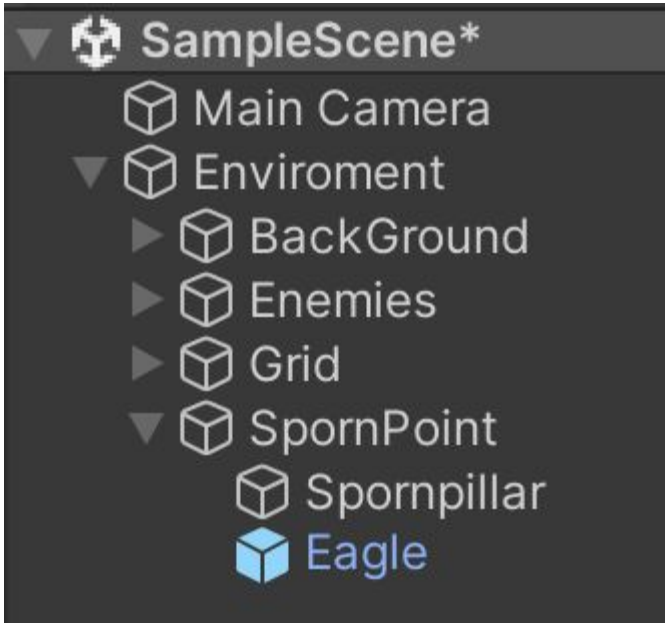
m：_rigidbody.mass

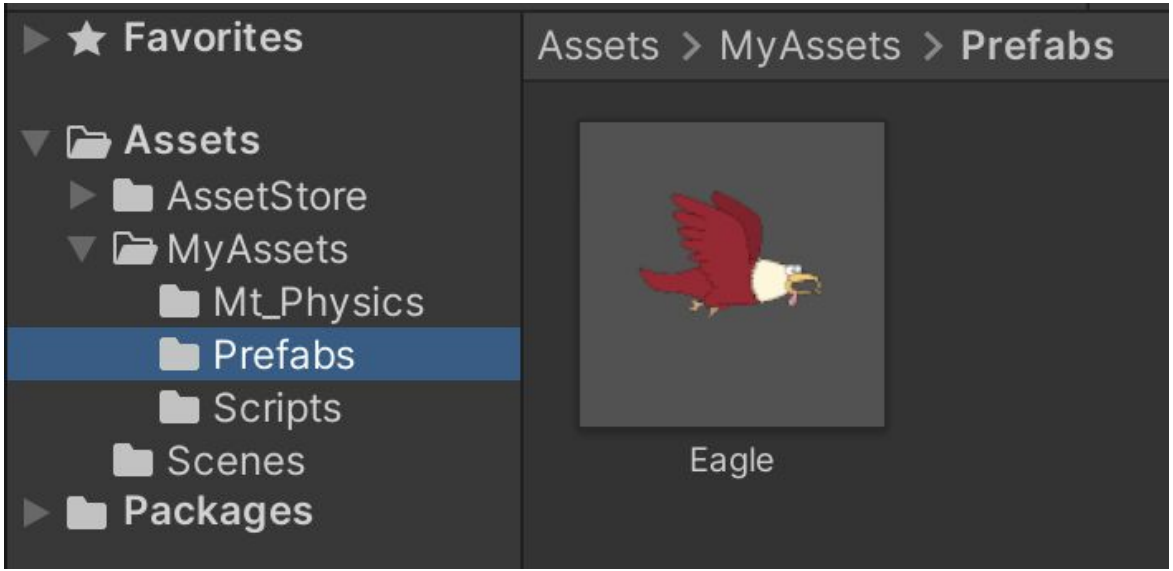
v：AddForce実行前の_rigidbody.velocity

v'：AddForce実行後の_rigidbody.velocity

I：Vector3の内容

何度も飛ばせるように
Prefabを用意する
（どのシーンからでも
　取得できるよう「シングルトン」を使用）

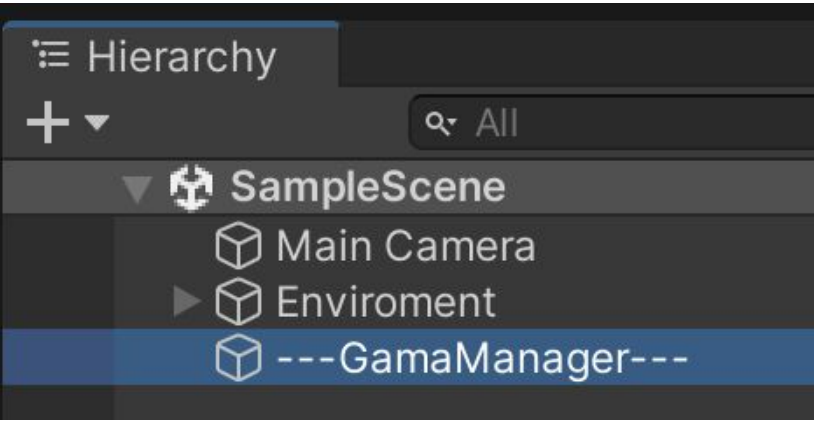

SampleScene*
Main Camera
Enviroment
BackGround
Enemies
Grid
SpornPoint
Spornpillar
Eagle

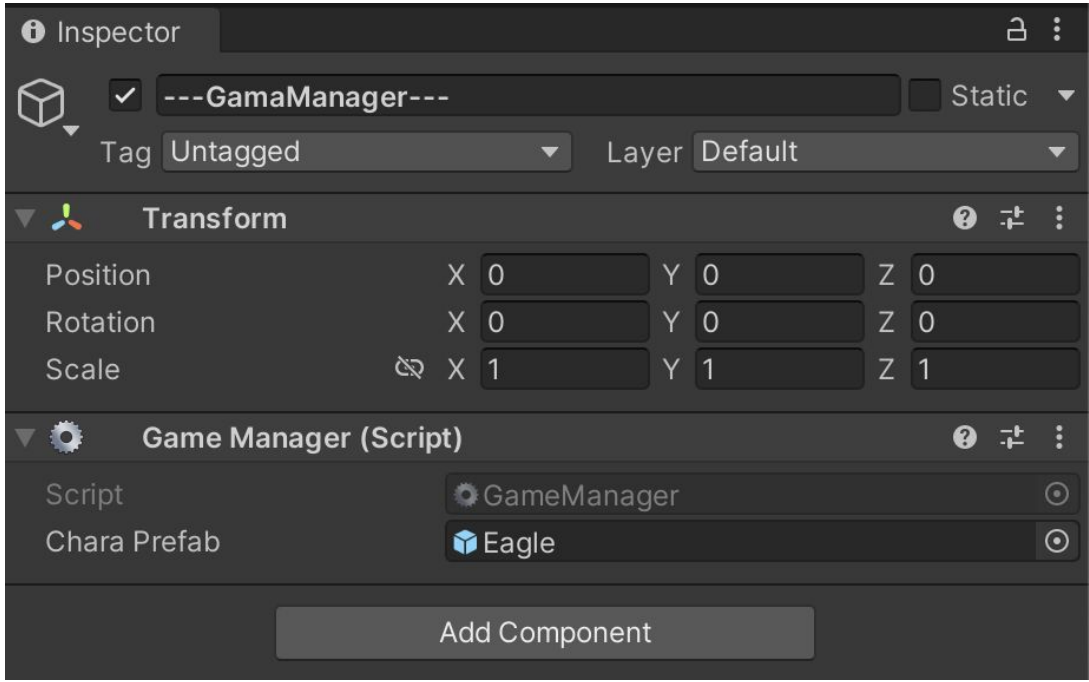

Favorites
Assets
AssetStore
MyAssets
Mt_Physics
Prefabs
Scripts
Scenes
Packages
Assets > MyAssets > Prefabs
Eagle

```
//「同一のゲームオブジェクトは常に１つだけにする」
using UnityEngine;
using System;

public abstract class SingletonMonoBehaviour<T> : MonoBehaviour where T : MonoBehaviour
{
    private static T instance;
    public static T Instance
    {
        get
        {
            if (instance == null)//インスタンスがまだ作られていない
            {
                Type t = typeof(T);
                instance = (T)FindObjectOfType(t);//全オブジェクトを探索,名前が一致するクラスがあった場合は取得する
                if (instance == null)
                {
                    Debug.LogError(t + " をアタッチしているGameObjectはありません");
                }
            }
            return instance;
        }
    }
```

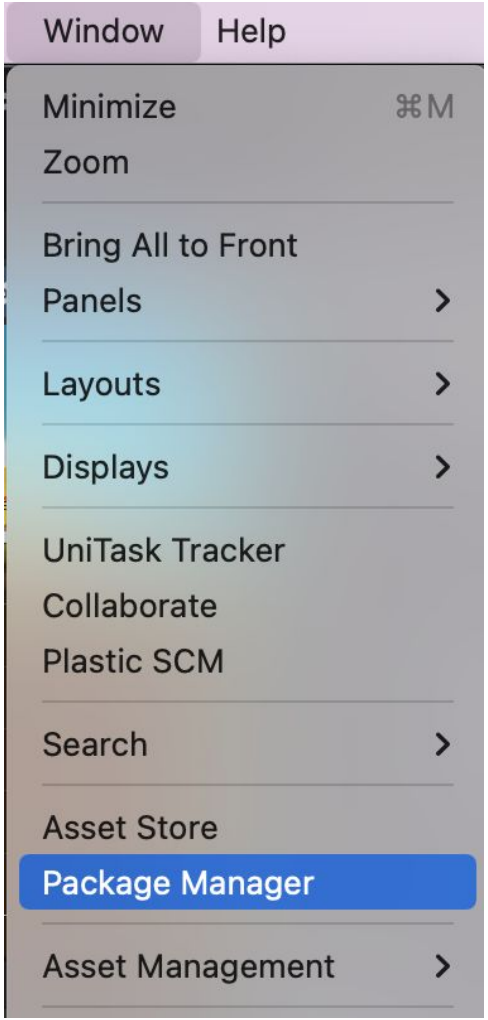
```
virtual protected void Awake()
{
    CheckInstance();// 他のゲームオブジェクトにスクリプトがアタッチされているか調べる
    DontDestroyOnLoad(this.gameObject);
}

protected bool CheckInstance()
{
    if (instance == null)//インスタンスがまだ作られていない
    {
        instance = this as T;
        return true;
    }
    else if (Instance == this)
    {
        return true;
    }
    Destroy(this.gameObject); //既に同一名のクラスが存在していた場合は破棄する。
    return false;
}
```

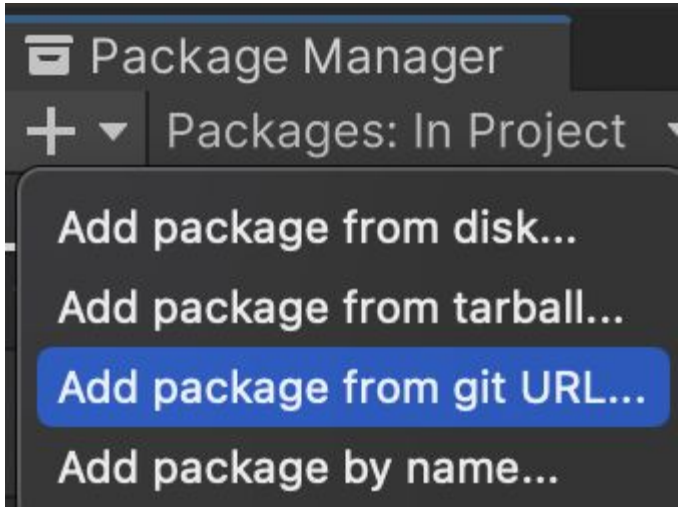
```
using System.Collections;
using System.Collections.Generic;
using UnityEditor.Timeline.Actions;
using UnityEngine;

//SingletonMonoBehaviourをGameManagerクラスにして継承
//GameManagerクラスをstaticに持つ
public class GameManager : SingletonMonoBehaviour<GameManager>
{
    [SerializeField] GameObject _charaPrefab;
    public GameObject CharaPrefab => _charaPrefab;

    Vector2 _startPosition = new Vector2(-5.43f, -0.73f);

    public void CharaCreate() {
        Debug.Log("キャラ作れ");
        Instantiate(_charaPrefab,_startPosition,Quaternion.identity);
    }

}
```


Hierarchy
All
SampleScene
Main Camera
Enviroment
---GamaManager---

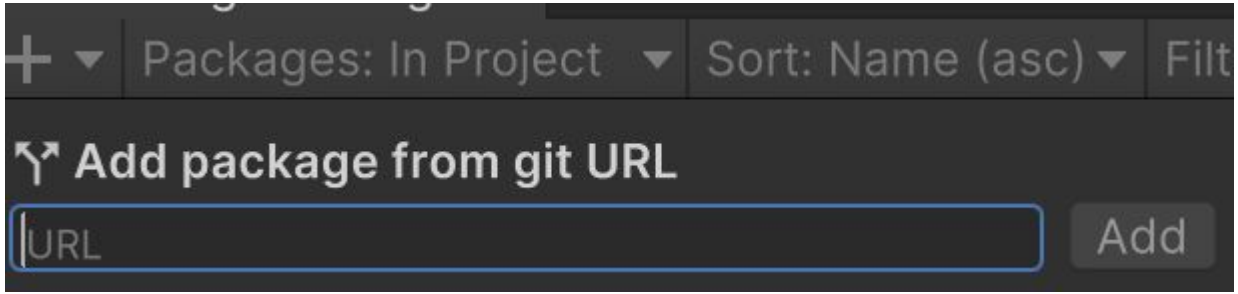

Inspector
---GamaManager---
Static
Tag
Untagged
Layer
Default
Transform
Position
Rotation
Scale
X 0
Y 0
Z 0
X 0
Y 0
Z 0
X 1
Y 1
Z 1
Game Manager (Script)
Script
GameManager
Chara Prefab
Eagle
Add Component

UniTaskを使用


Window
Help
Minimize ⌘M
Zoom
Bring All to Front
Panels
Layouts
Displays
UniTask Tracker
Collaborate
Plastic SCM
Search
Asset Store
Package Manager
Asset Management



https://github.com/Cysharp/UniTask.git?path=src/UniTask/Assets/Plugins/UniTask



EagleCtrl.cs

```
using UnityEngine;
using Cysharp.Threading.Tasks;
using System;
```

EagleCtrl.cs

```
private async UniTask NewCaracterCreate()
{
    float _createTime = 2f;
    await WaitSec(_createTime);
    Debug.Log("キャラ作成");
    GameManager.Instance.CharaCreate();
}

// ?秒待機するUniTask
async UniTask WaitSec(float sec)
{
    await UniTask.Delay(TimeSpan.FromSeconds(sec));
}
```

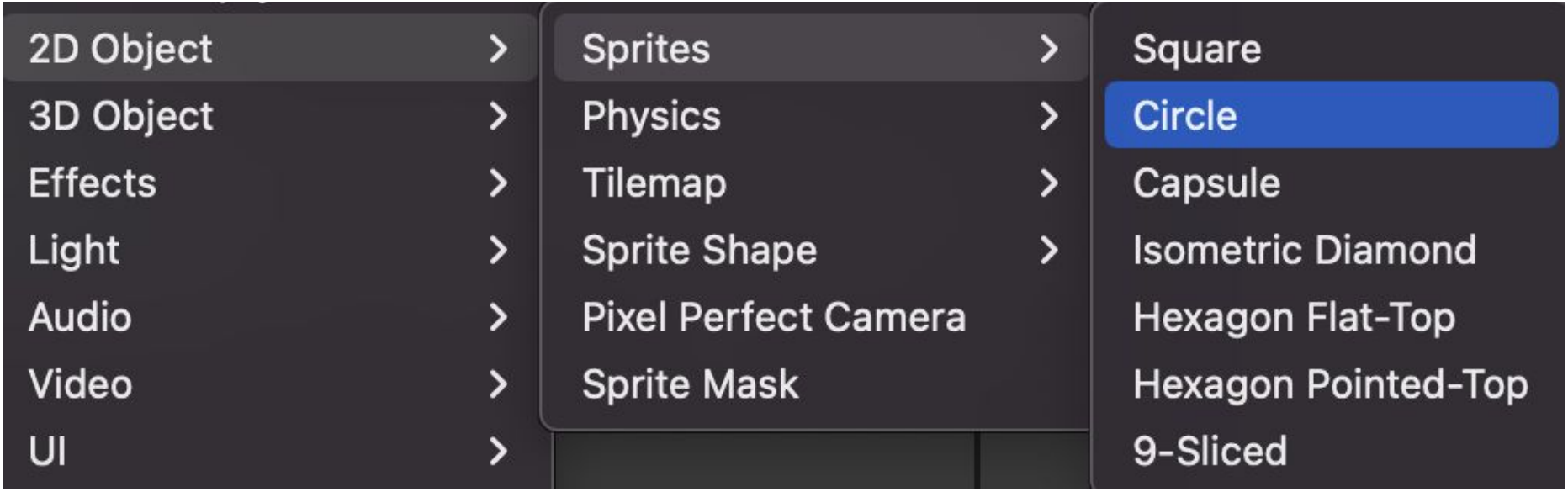
EagleCtrl.cs

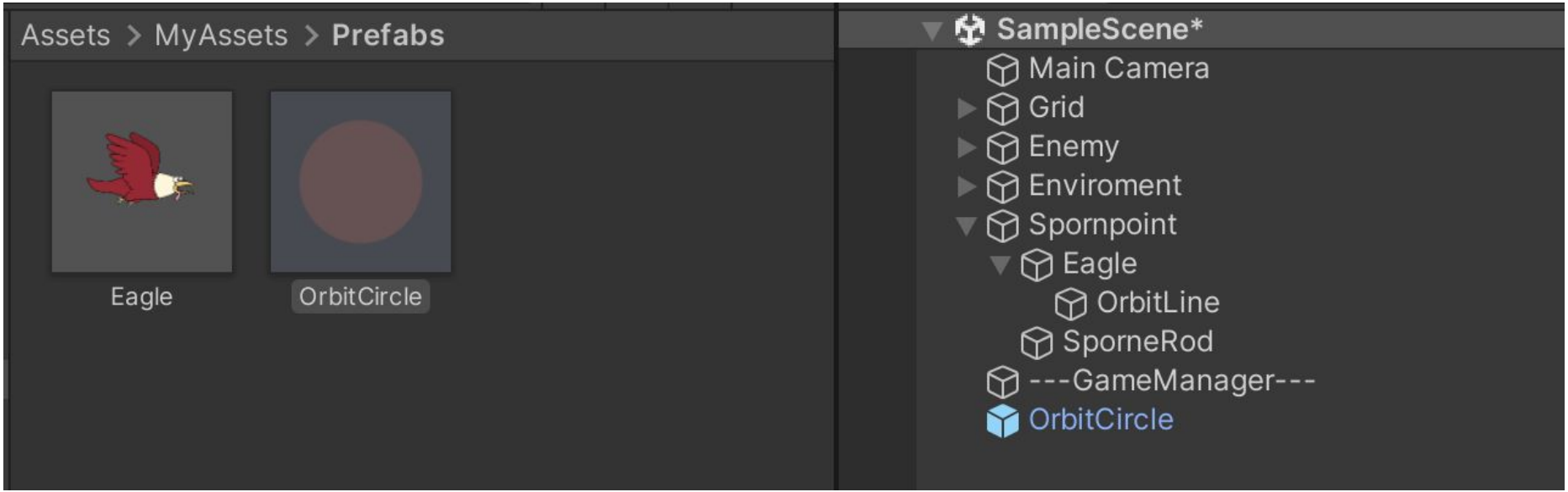
```
float _flyForce = 5f;
private async void OnMouseUp()
{
    if (_isFlied) return;//飛ばしたなら　操作できないようにする
    _isFlied = true;//「飛ばした」状態にする
    _rb2d.isKinematic = false;//物理演算を行う
    _rb2d.AddForce(_flyForce * _flyDirection, ForceMode2D.Impulse);//飛ばした瞬間だけ外力を加える
    await NewCaracterCreate();

}
```

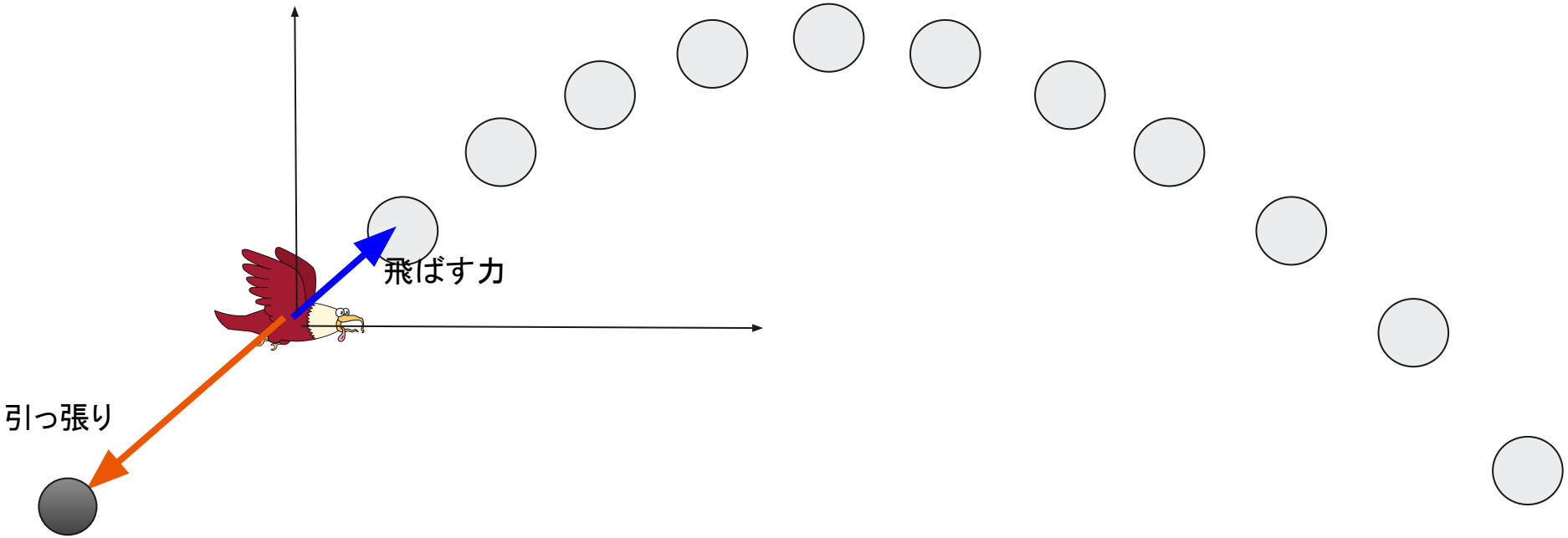
EagleCtrl.cs

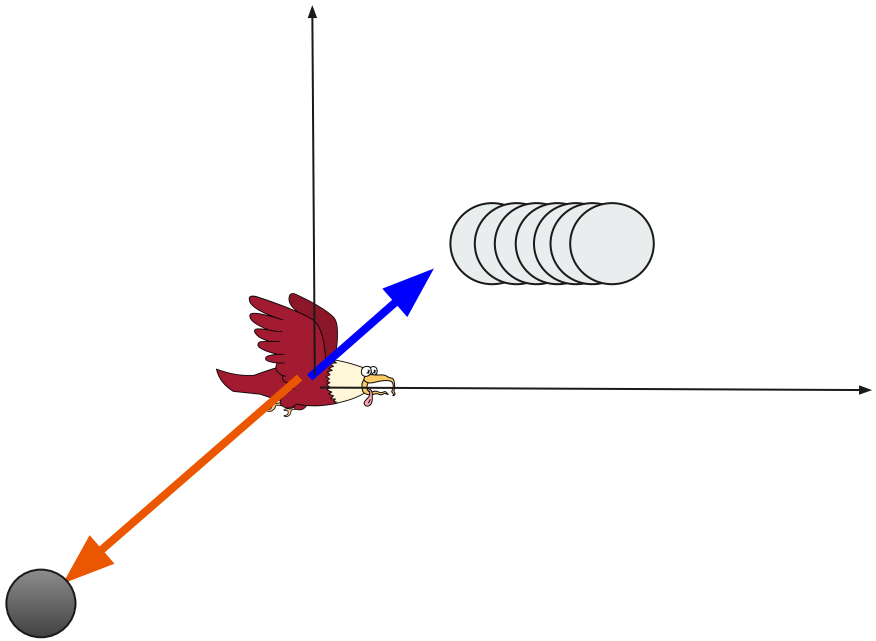
```
private void OnCollisionEnter2D(Collision2D collision)
{
    if (!collision.gameObject.CompareTag("Player")){
        float _destroyTime = 1f;
        Destroy(gameObject, _destroyTime);
    }
}
```

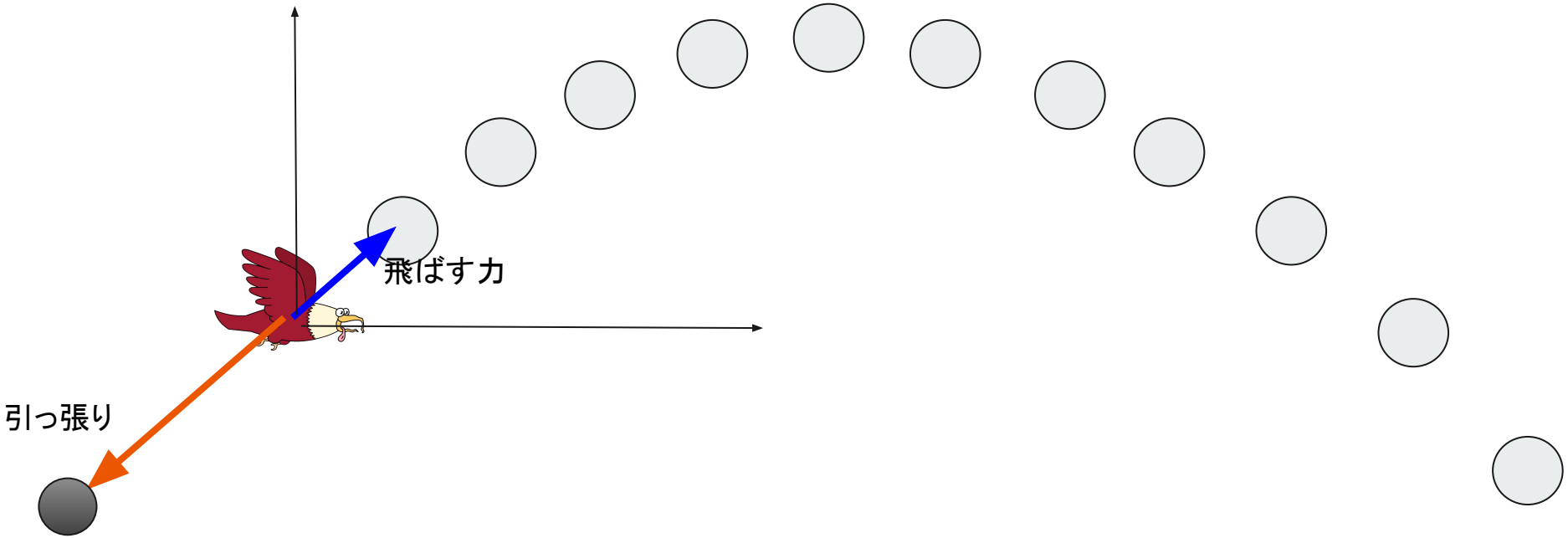
飛ばす軌跡を作成


2D Object
3D Object
Effects
Light
Audio
Video
UI
Sprites
Physics
Tilemap
Sprite Shape
Pixel Perfect Camera
Sprite Mask
Square
Circle
Capsule
Isometric Diamond
Hexagon Flat-Top
Hexagon Pointed-Top
9-Sliced

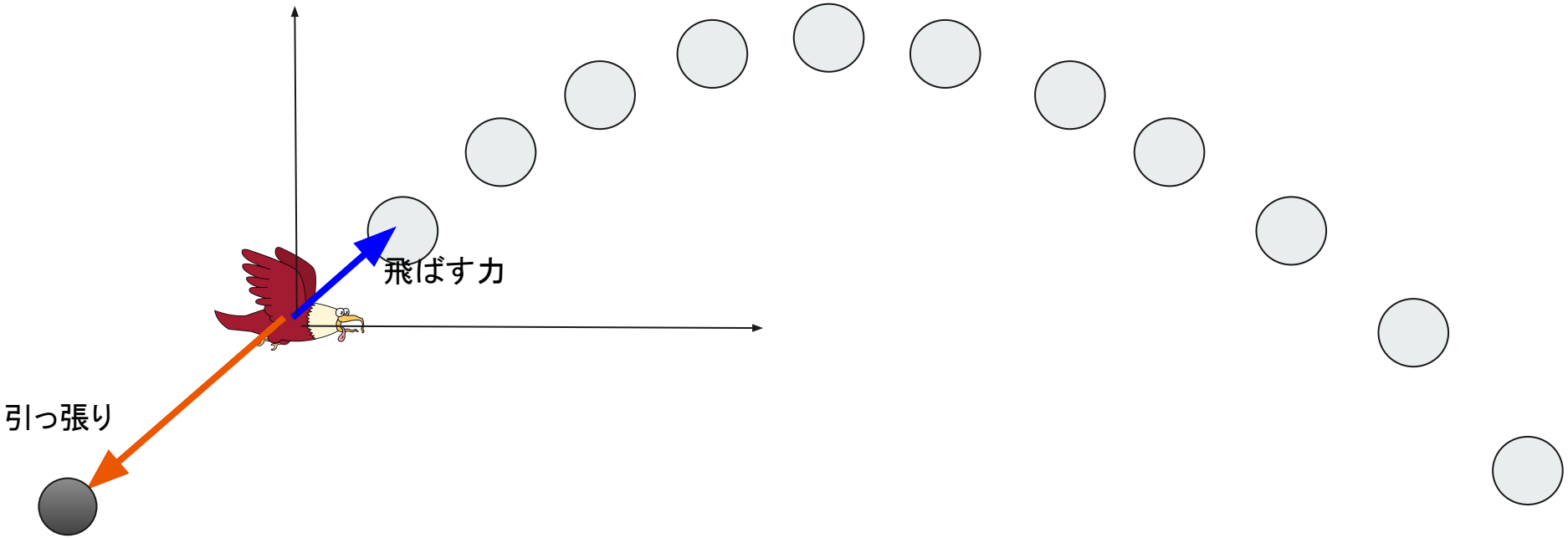

Assets > MyAssets > Prefabs
Eagle
OrbitCircle
SampleScene*
Main Camera
Grid
Enemy
Enviroment
Spornpoint
Eagle
OrbitLine
SporneRod
---GameManager---
OrbitCircle


飛ばす力
引っ張り

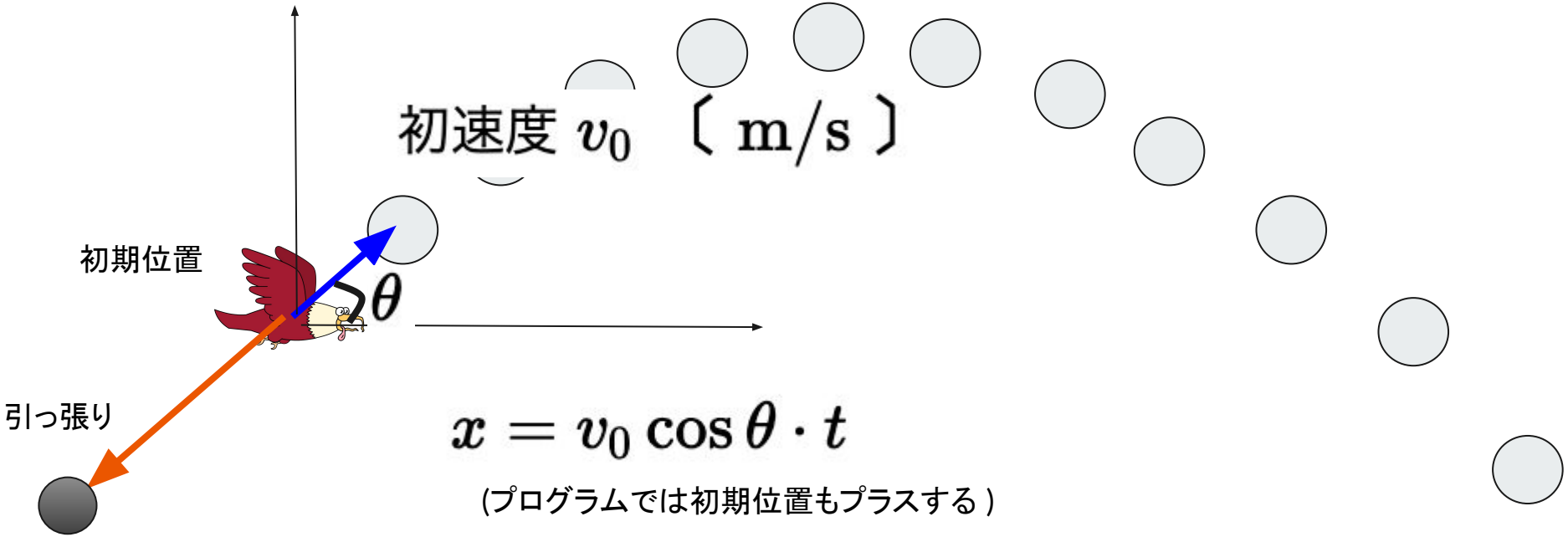



飛ばす力
引っ張り

```
/*軌跡*/
[SerializeField] GameObject _orbitCircle;//描画する円
GameObject[] _orbitLineArray = new GameObject[20];
void Start()
{
    _startPos = Vector2.zero;//初期化
    _birdPos  = Vector2.zero;//初期化
    TryGetComponent( out _rb2d);
    TryGetComponent(out _c2d);
    _rb2d.isKinematic = true;//物理演算を切っておく
    _c2d.isTrigger = true;//トリガー判定をオンにしておく
    _startPos = transform.position;//開始位置
    _isFlied = false;//飛ばす前

    for (int i=0;i<_orbitLineArray.Length;i++) {
        _orbitLineArray[i] = Instantiate(_orbitCircle);
    }
}
```


飛ばす力
引っ張り

$$y = v_0 \sin\theta \cdot t - \frac{1}{2} g t^2$$ (プログラムでは初期位置もプラスする)



$$x = v_0 \cos\theta \cdot t$$

(プログラムでは初期位置もプラスする)

```
/*軌跡*/
[SerializeField] GameObject _orbitCircle;//描画する円
GameObject[] _orbitLineArray = new GameObject[20];//軌道描画時に使用する配列
[SerializeField] float _renderInterval = 0.25f;//描画間隔
```

```
//軌道の描画
void DrawOrbitLine()
{
    Vector2 _forceVec = _flyForce * _flyDirection;//飛ばす速度ベクトル
    var _xAccele = _forceVec.x ;//x方向加速度
    var _yAccele = _forceVec.y ;//y方向加速度

    var currentTime = _renderInterval;

    for (int i = 0; i < _orbitLineArray.Length; i++)
    {
        var Position = new Vector2();
        Position.x = transform.position.x + _xAccele * currentTime;
        Position.y = transform.position.y + _yAccele * currentTime
            - Physics2D.gravity.magnitude * Mathf.Pow(currentTime, 2.0f) / 2;
        _orbitLineArray[i].transform.position = Position;
        currentTime += _renderInterval;
    }
}
```

```
private void OnMouseDrag()//マウスをドラッグしてる時
{
    if (_isFlied) return;//飛ばしたなら　操作できないようにする
    Vector2 mouse_pos = Camera.main.ScreenToWorldPoint(Input.mousePosition);//マウスの位置
    _birdPos = mouse_pos;
    _flyDirection = _startPos - mouse_pos;//マウスの位置から見た開始位置のベクトル
    float sToM_Distance = _flyDirection.magnitude;//マウスとキャラの距離
    if (sToM_Distance > _maxDistance)
    {
        Vector2 _flyDirectNorm = (-1) * _flyDirection.normalized;//正規化して方向だけ求めて
        _birdPos = _startPos + _maxDistance * _flyDirectNorm;//最大距離まで伸ばして、開始地点に足す
    }
    if (_startPos.x < _birdPos.x)  _birdPos.x = _startPos.x; //開始位置より右に行かないようにする
    transform.position = _birdPos;

    DrawOrbitLine();
}
```

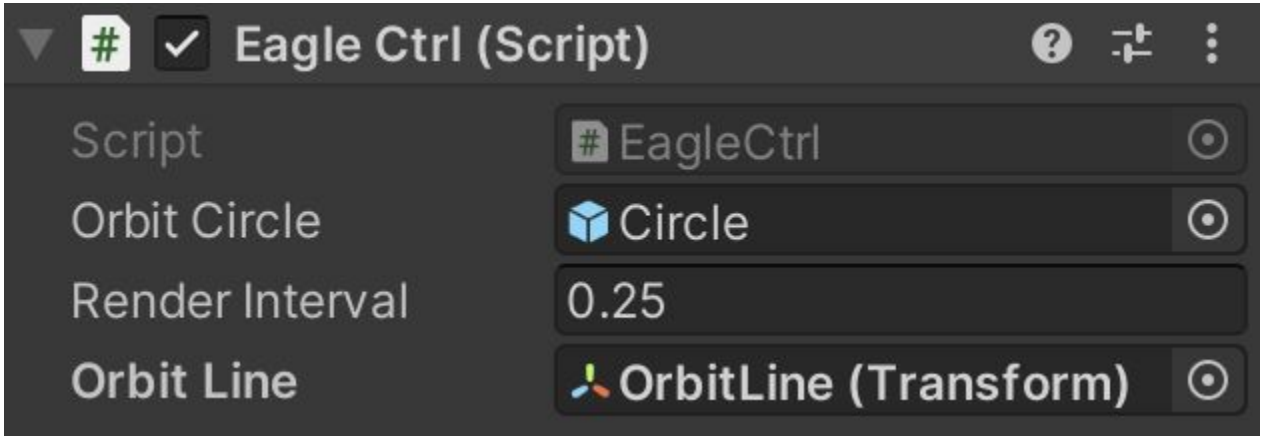
実行すると、

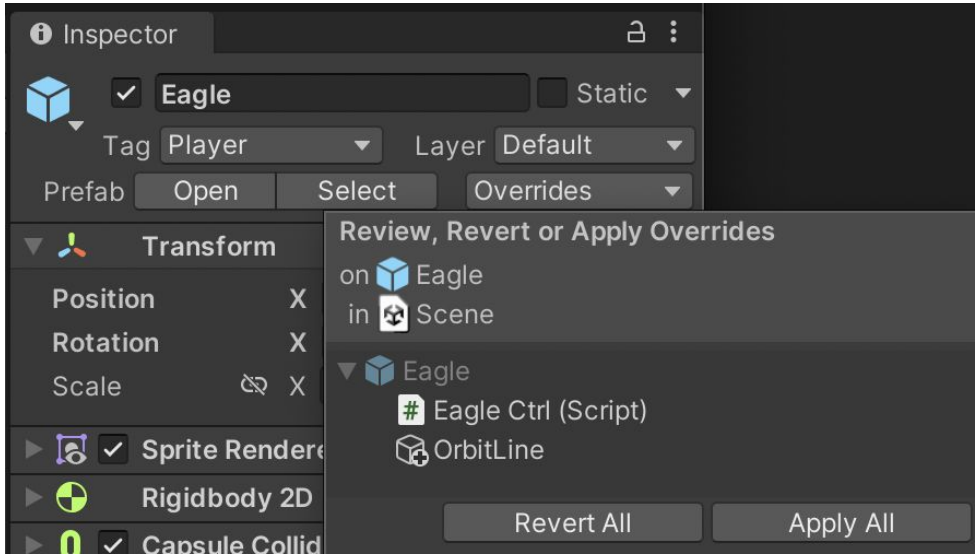
軌跡はよさそうなのであとは細かいところを直していく

軌跡が操作キャラと
一緒に消えるようにする

軌跡を操作キャラの子オブジェクトにする

```
[SerializeField] Transform _orbitLine;    //この子階層に軌跡のオブジェクトを生成

void Start()
{
    _startPos = Vector2.zero;//初期化
    _birdPos  = Vector2.zero;//初期化
    TryGetComponent( out _rb2d);
    TryGetComponent(out _c2d);
    _rb2d.isKinematic = true;//物理演算を切っておく
    _c2d.isTrigger = true;//トリガー判定をオンにしておく
    _startPos = transform.position;//開始位置
    _isFlied = false;//飛ばす前

    for (int i=0 ;  i < _orbitLineArray.Length ; i++) {
        _orbitLineArray[i] = Instantiate(_orbitCircle);
        _orbitLineArray[i].transform.parent = _orbitLine.transform;
    }
}
```


Eagle Ctrl (Script)
Script
EagleCtrl
Orbit Circle
Circle
Render Interval
0.25
Orbit Line
OrbitLine (Transform)


Inspector
Eagle
Static
Tag
Player
Layer
Default
Prefab
Open
Select
Overrides
Transform
Position
X
Rotation
X
Scale
X
Sprite Rendere
Rigidbody 2D
Capsule Collid
Review, Revert or Apply Overrides
on
Eagle
in
Scene
Eagle
Eagle Ctrl (Script)
OrbitLine
Revert All
Apply All

実行すると、

軌跡が手を離した後もキャラと一緒に移動してる
あと、話す前から軌跡の円が見えてる

```
void Start()
{
    _startPos = Vector2.zero;//初期化
    _birdPos  = Vector2.zero;//初期化
    TryGetComponent( out _rb2d);
    TryGetComponent(out _c2d);
    _rb2d.isKinematic = true;//物理演算を切っておく
    _c2d.isTrigger = true;//トリガー判定をオンにしておく
    _startPos = transform.position;//開始位置
    _isFlied = false;//飛ばす前

    for (int i=0 ;  i < _orbitLineArray.Length ; i++) {
        _orbitLineArray[i] = Instantiate(_orbitCircle);
        _orbitLineArray[i].transform.parent = _orbitLine.transform;
        _orbitLineArray[i].SetActive(false);
    }
}
```

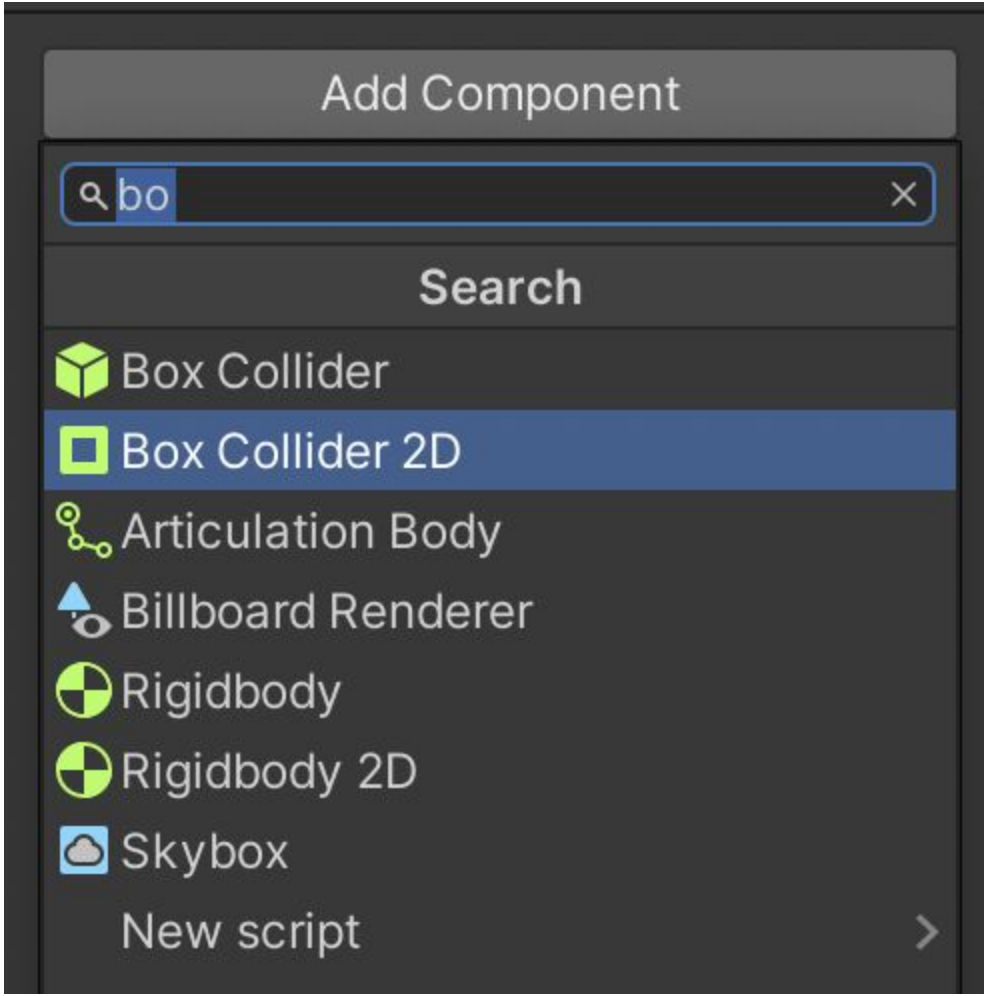
```
//軌道の描画
void DrawOrbitLine()
{
    Vector2 _forceVec = _flyForce * _flyDirection;//飛ばす速度ベクトル
    var _xAccele = _forceVec.x ;//x方向加速度
    var _yAccele = _forceVec.y ;//y方向加速度

    var currentTime = _renderInterval;

    for (int i = 0; i < _orbitLineArray.Length; i++)
    {
        _orbitLineArray[i].SetActive(true);
        var Position = new Vector2();
        Position.x = transform.position.x + _xAccele * currentTime;
        Position.y = transform.position.y + _yAccele * currentTime
            - Physics2D.gravity.magnitude * Mathf.Pow(currentTime, 2.0f) / 2;
        _orbitLineArray[i].transform.position = Position;
        currentTime += _renderInterval;
    }
}
```

```
float _flyForce = 5f;
private async void OnMouseUp()
{
    if (_isFlied) return;//飛ばしたなら　操作できないようにする
    _isFlied = true;//「飛ばした」状態にする
    _rb2d.isKinematic = false;//物理演算を行う
    _rb2d.AddForce(_flyForce * _flyDirection, ForceMode2D.Impulse);//飛ばした瞬間だけ外力を加える
    for (int i = 0; i < _orbitLineArray.Length; i++){//軌跡に描画する円の配列
        _orbitLineArray[i].SetActive(false);//離したら描画を止める
    }
    await NewCaracterCreate();
}
```

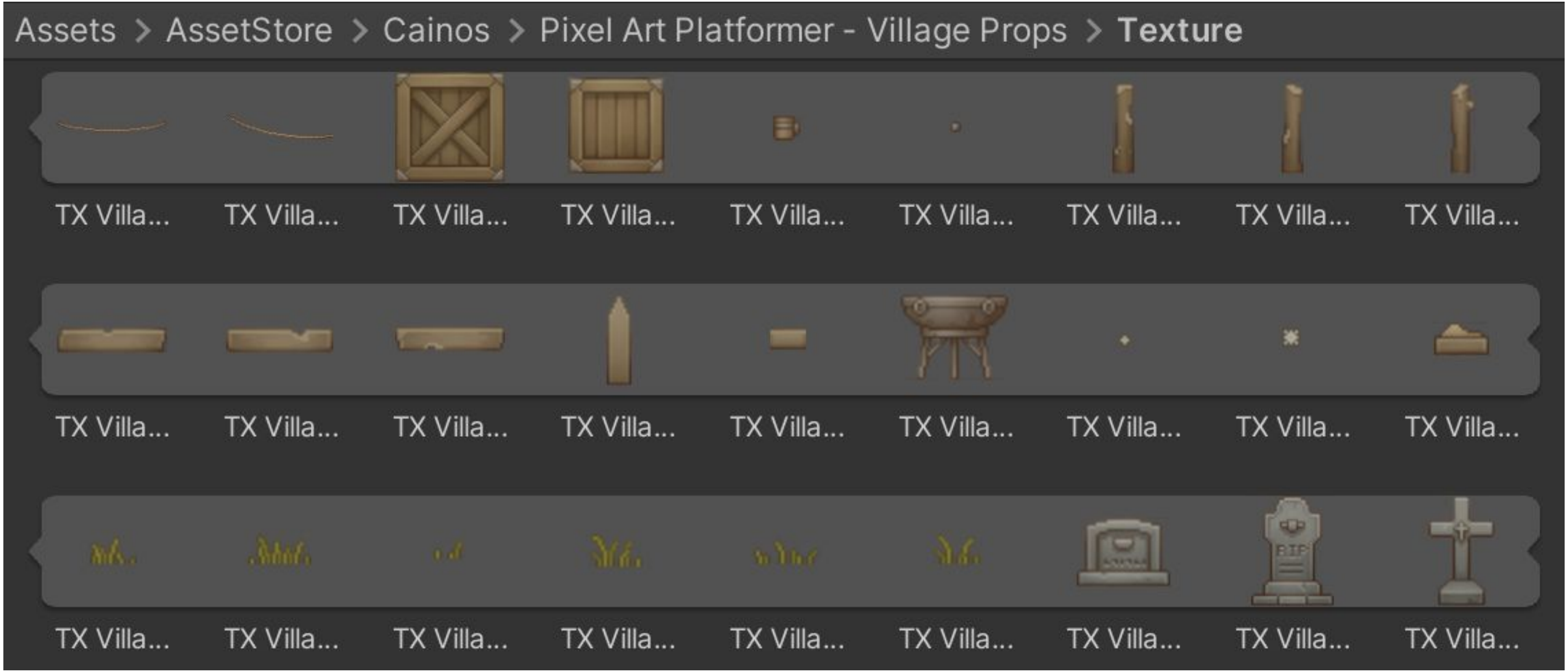
実行、
あとは、軌跡の大きさを緩やかに小さくするなど

```
float _magnification = 0.045f;//縮小度

void Start()
{
    _startPos = Vector2.zero;//初期化
    _birdPos  = Vector2.zero;//初期化
    TryGetComponent( out _rb2d);
    TryGetComponent(out _c2d);
    _rb2d.isKinematic = true;//物理演算を切っておく
    _c2d.isTrigger = true;//トリガー判定をオンにしておく
    _startPos = transform.position;//開始位置
    _isFlied = false;//飛ばす前

    for (int i=0 ;  i < _orbitLineArray.Length ; i++) {
        _orbitLineArray[i] = Instantiate(_orbitCircle);
        _orbitLineArray[i].transform.parent = _orbitLine.transform;// _orbitLineに設定した子オブジェクトにする
        //徐々に小さくする　マイナスになると拡大してしまう
        _orbitLineArray[i].transform.localScale = _orbitLineArray[i].transform.localScale * (1 - _magnification * i);
        _orbitLineArray[i].SetActive(false);
    }
}
```

敵との衝突処理


Add Component
bo
Search
Box Collider
Box Collider 2D
Articulation Body
Billboard Renderer
Rigidbody
Rigidbody 2D
Skybox
New script

```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class Enemy : MonoBehaviour
{

    private void OnCollisionEnter2D(Collision2D collision)
    {
        Destroy(gameObject);
    }
}
```


Assets > AssetStore > Cainos > Pixel Art Platformer - Village Props > Texture
TX Villa...
TX Villa...
TX Villa...
TX Villa...
TX Villa...
TX Villa...
TX Villa...
TX Villa...
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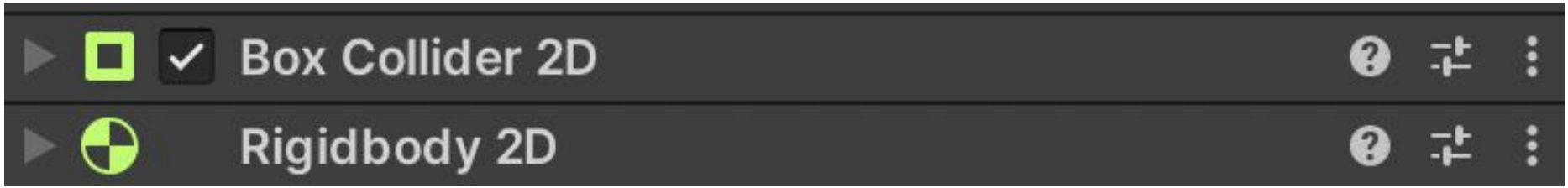
TX Villa...


Box Collider 2D
Rigidbody 2D

実行すると
敵キャラが何と当たっても消えてしまうので、速さ依存で消えるようにする

```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class Enemy : MonoBehaviour
{

    private void OnCollisionEnter2D(Collision2D collision)
    {
        Debug.Log(collision.relativeVelocity.sqrMagnitude);
        //Destroy(gameObject);
    }
}
```

```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class Enemy : MonoBehaviour
{
    float _destroyVelocity = 40f;//この値以上ならオブジェクトを破壊する
    private void OnCollisionEnter2D(Collision2D collision)
    {
        if (collision.relativeVelocity.sqrMagnitude > _destroyVelocity)
        {
            Destroy(gameObject);
        }
    }
}
```

実行

敵キャラの数が0になったことをどうやって判断するか

敵キャラが出現した時に、staticなGameManagerに、
敵キャラの数をカウントしてくれるプログラムにしてみよう

GameManager.cs

```
int  enemyCount
```

```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class Enemy : MonoBehaviour
{
    float _destroyVelocity = 40f;//この値以上ならオブジェクトを破壊する
    private void OnCollisionEnter2D(Collision2D collision)
    {
        if (collision.relativeVelocity.sqrMagnitude > _destroyVelocity)
        {
            Destroy(gameObject);
        }
    }
    private void Start()
    {
        //生成されたときに敵の数を増やす
        GameManager.Instance.EnemyCountAdd();
    }
}
```

GameManager.cs

```
//敵の数
int _enemyCount;
public int EnemyCount => _enemyCount;
```

```
///<summary>
/// 初期敵の数
///</summary>
public void EnemyCountAdd()
{
    _enemyCount++;
}
```

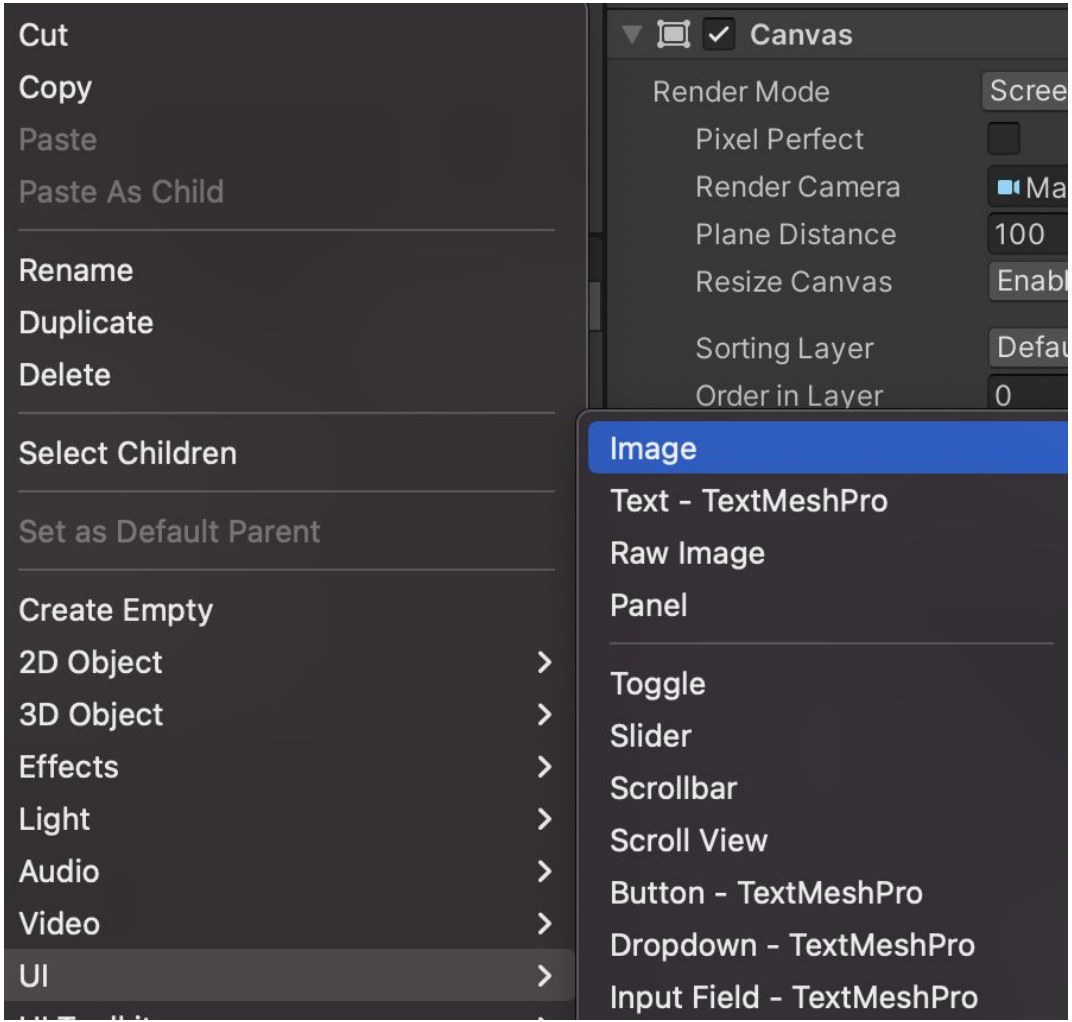
```
///<summary>
/// 敵の数を減らす
///</summary>
public void KillEnemy()
{
    _enemyCount--;
    if (_enemyCount == 0)
    {
        Debug.Log("クリア");
    }
}
```

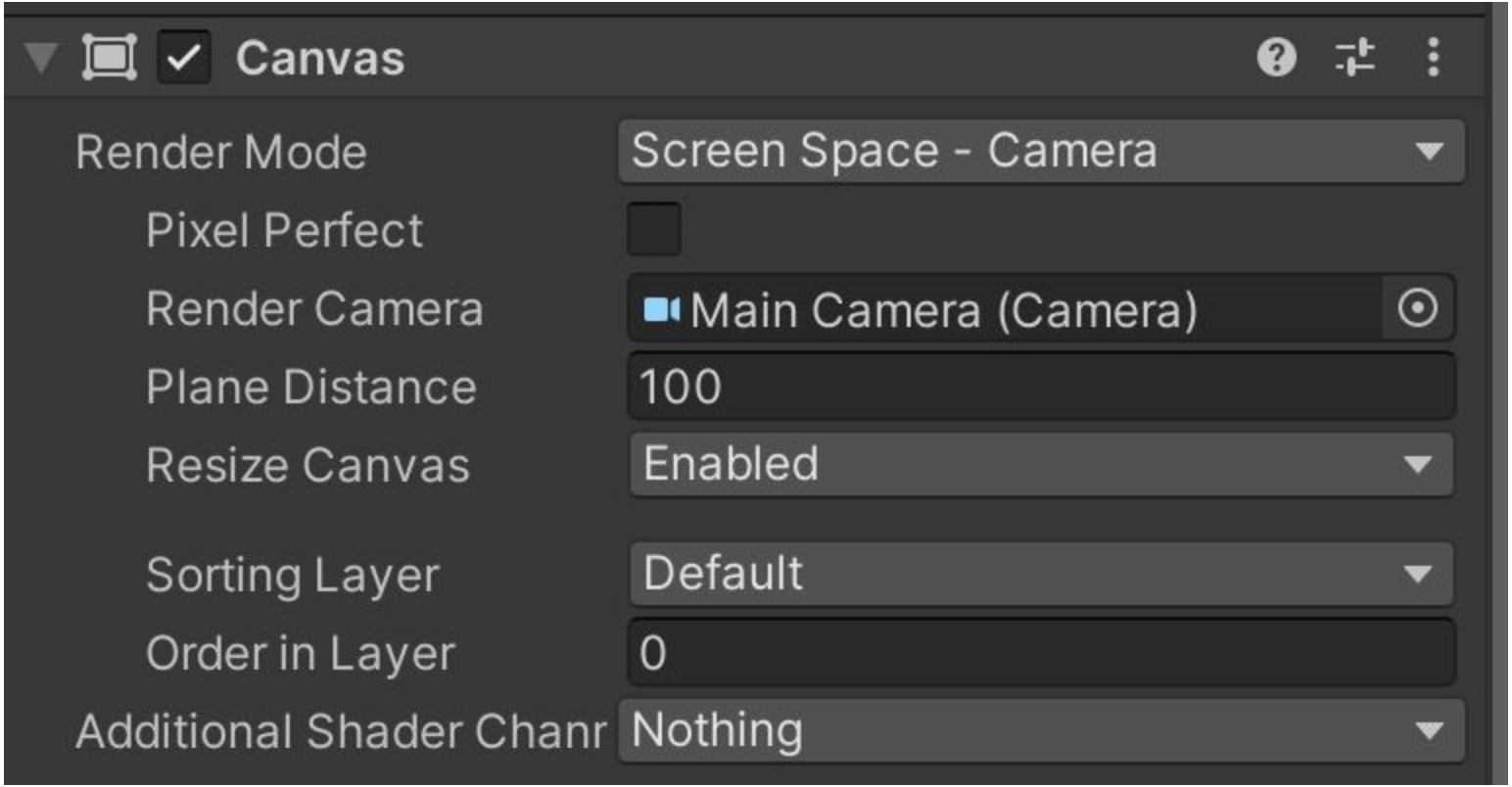
```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class Enemy : MonoBehaviour
{
    float _destroyVelocity = 40f;//この値以上ならオブジェクトを破壊する
    private void OnCollisionEnter2D(Collision2D collision)
    {
        if (collision.relativeVelocity.sqrMagnitude > _destroyVelocity)
        {
            Destroy(gameObject);
            GameManager.Instance.KillEnemy();
        }
    }
    private void Start()
    {
        //生成されたときに敵の数を増やす
        GameManager.Instance.EnemyCountAdd();
    }
}
```

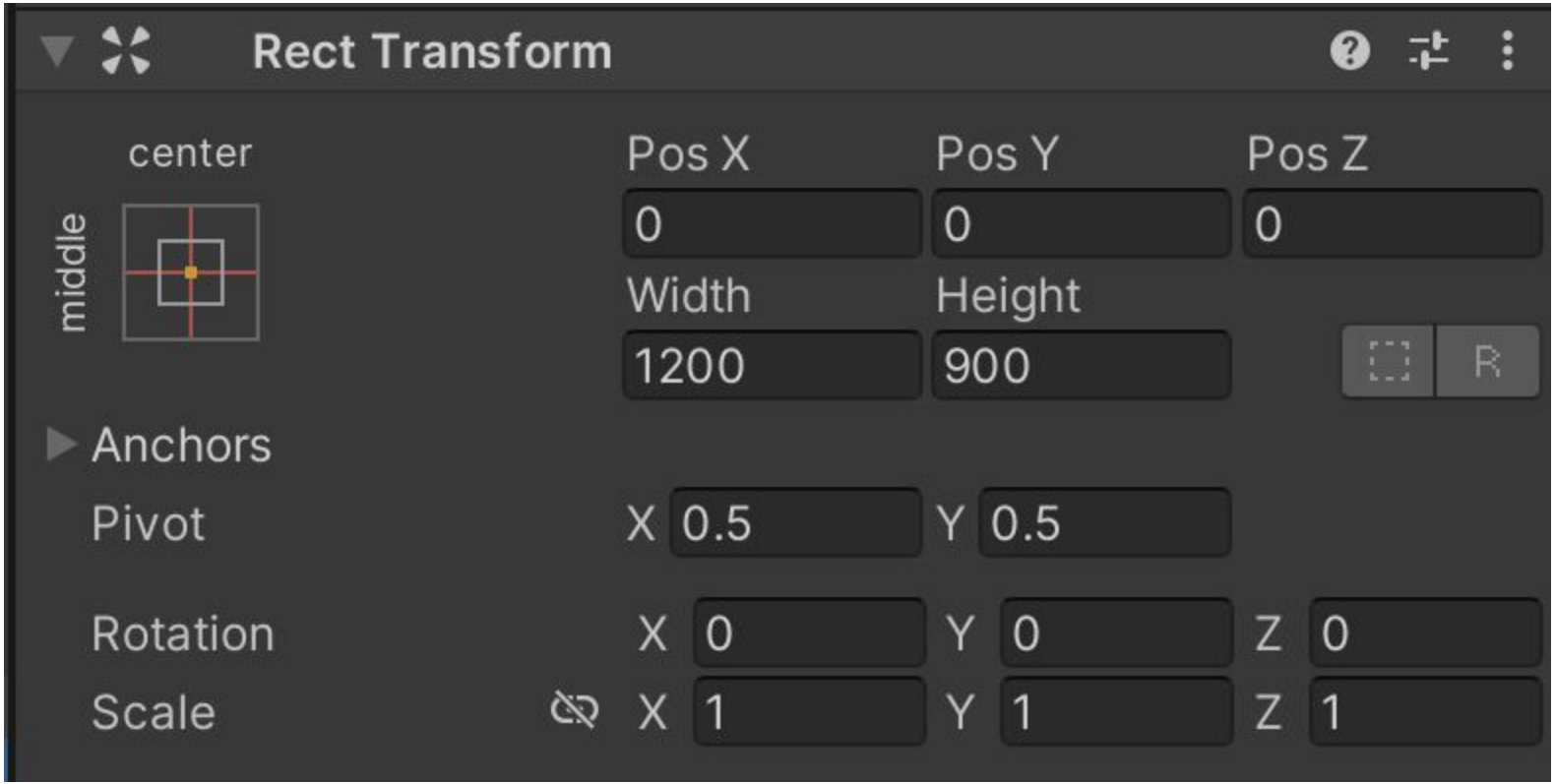
実行

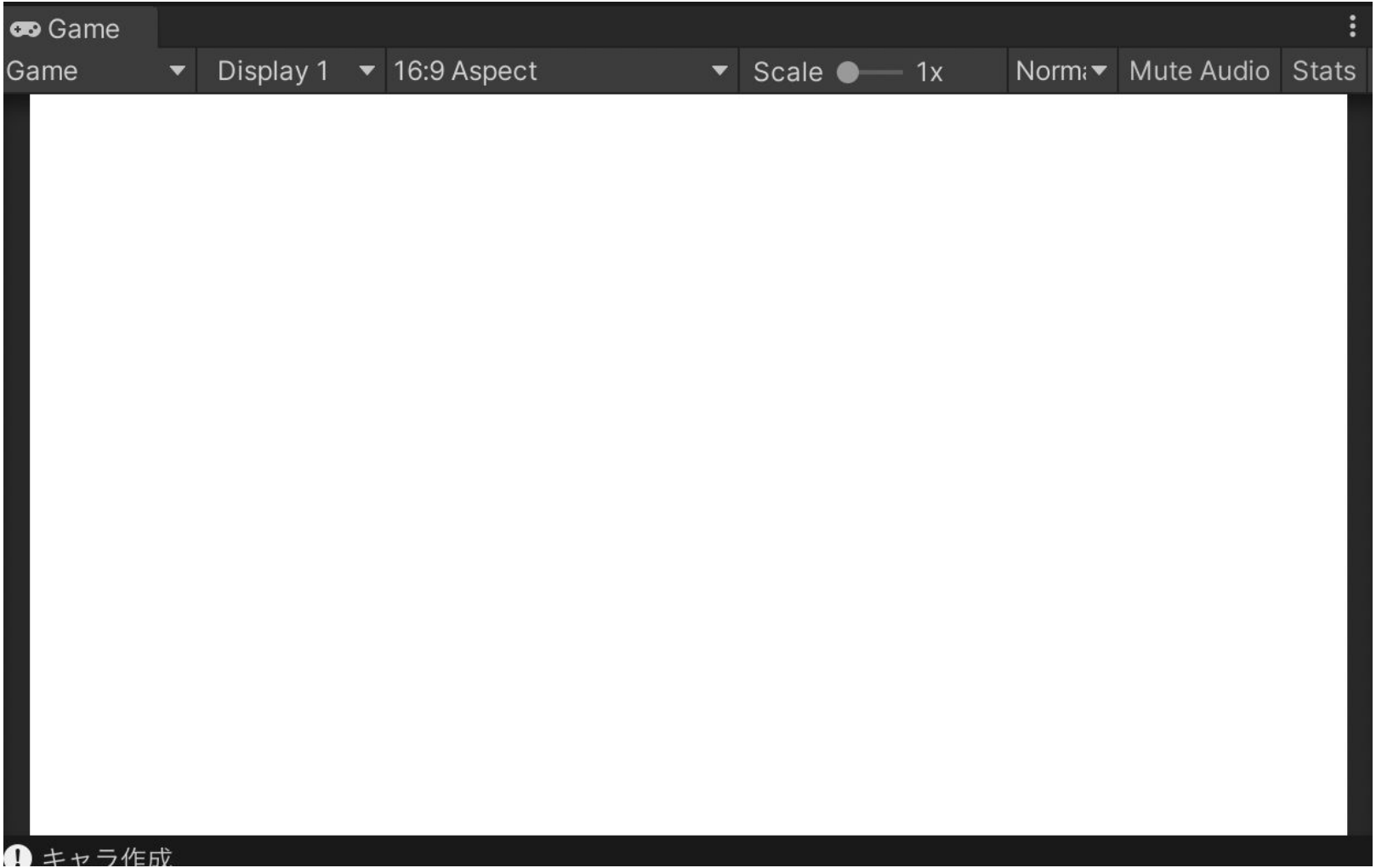
クリア画面までは作る

あとは、
・GameOver
・残機を設定、表示
・ステージを増やしてシーン遷移、タイトル
・カメラの挙動を変える
・BGM、SE
・エフェクト
などなど


Cut
Copy
Paste
Paste As Child
Rename
Duplicate
Delete
Select Children
Set as Default Parent
Create Empty
2D Object
3D Object
Effects
Light
Audio
Video
UI
Canvas
Render Mode
Pixel Perfect
Render Camera
Plane Distance
100
Resize Canvas
Sorting Layer
Order in Layer
0
Image
Text - TextMeshPro
Raw Image
Panel
Toggle
Slider
Scrollbar
Scroll View
Button - TextMeshPro
Dropdown - TextMeshPro
Input Field - TextMeshPro


Canvas
Render Mode
Screen Space - Camera
Pixel Perfect
Render Camera
Main Camera (Camera)
Plane Distance
100
Resize Canvas
Enabled
Sorting Layer
Default
Order in Layer
0
Additional Shader Chanr
Nothing


Rect Transform
center
middle
Pos X
Pos Y
Pos Z
0
0
0
Width
Height
1200
900
R
Anchors
Pivot
X 0.5
Y 0.5
Rotation
X 0
Y 0
Z 0
Scale
X 1
Y 1
Z 1


Game
Game
Display 1
16:9 Aspect
Scale
1x
Norma
Mute Audio
Stats
キャラ作成

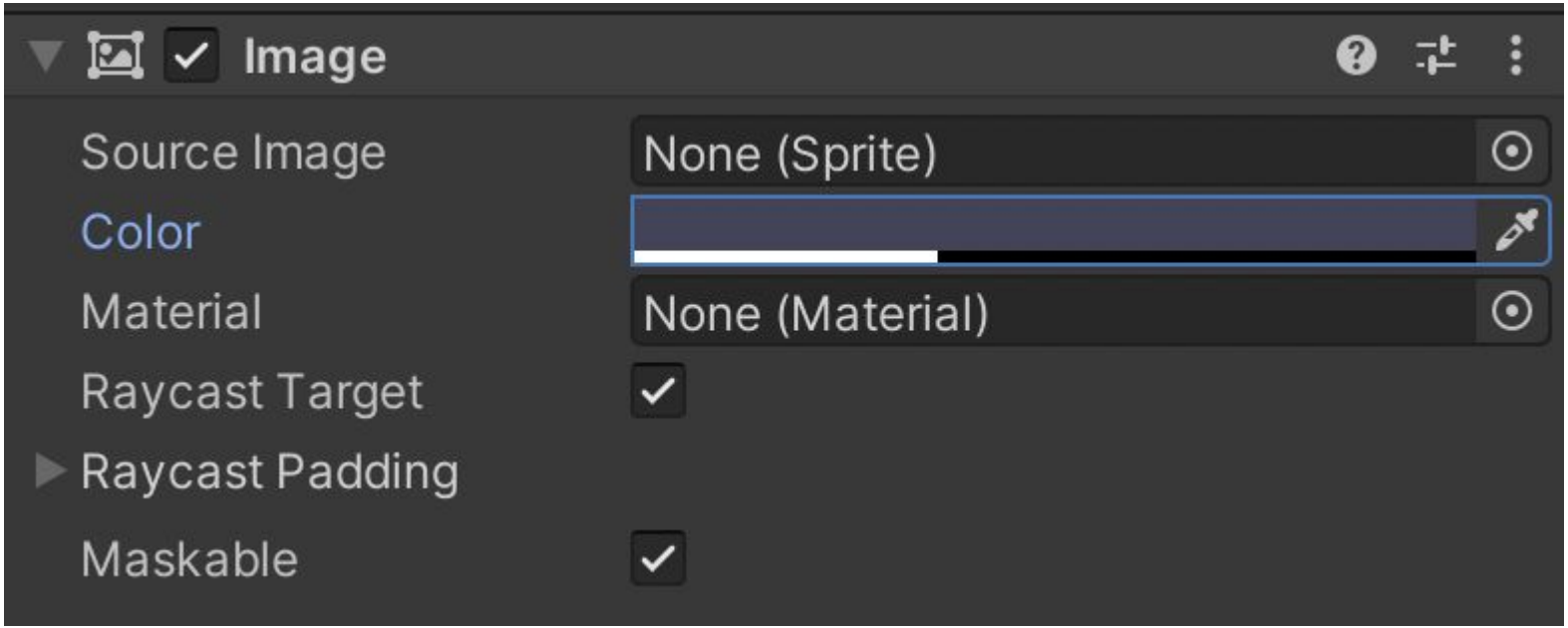
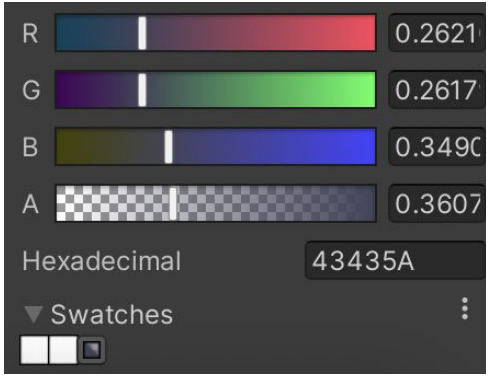
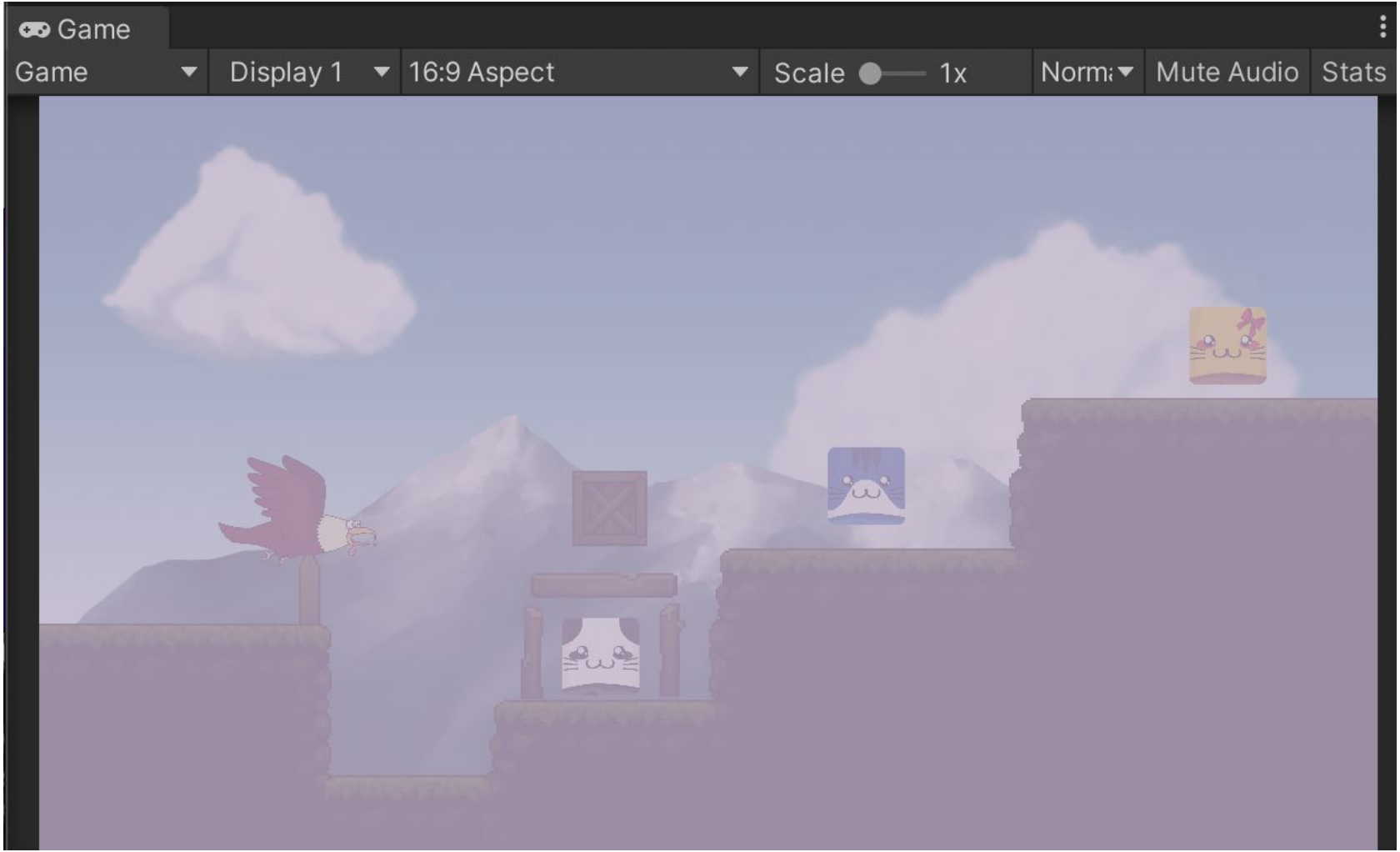
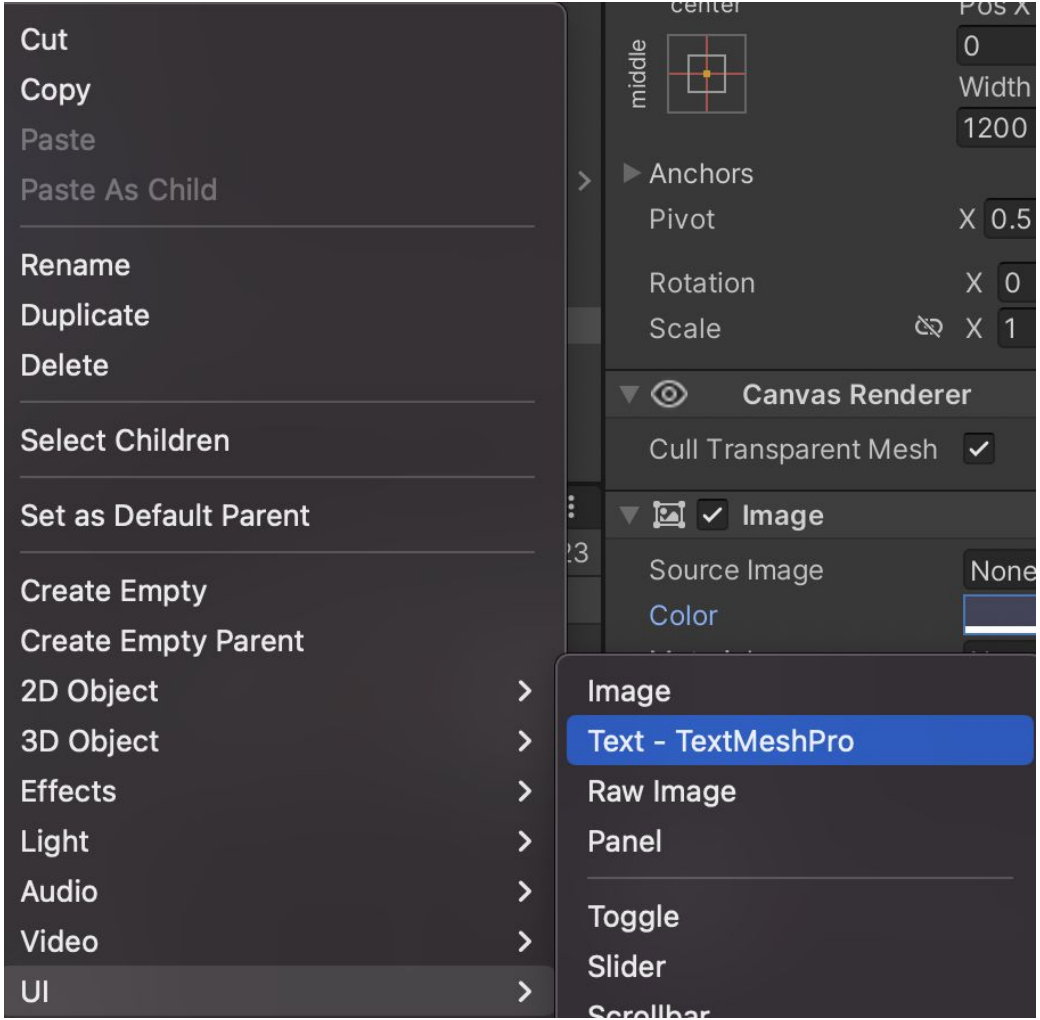
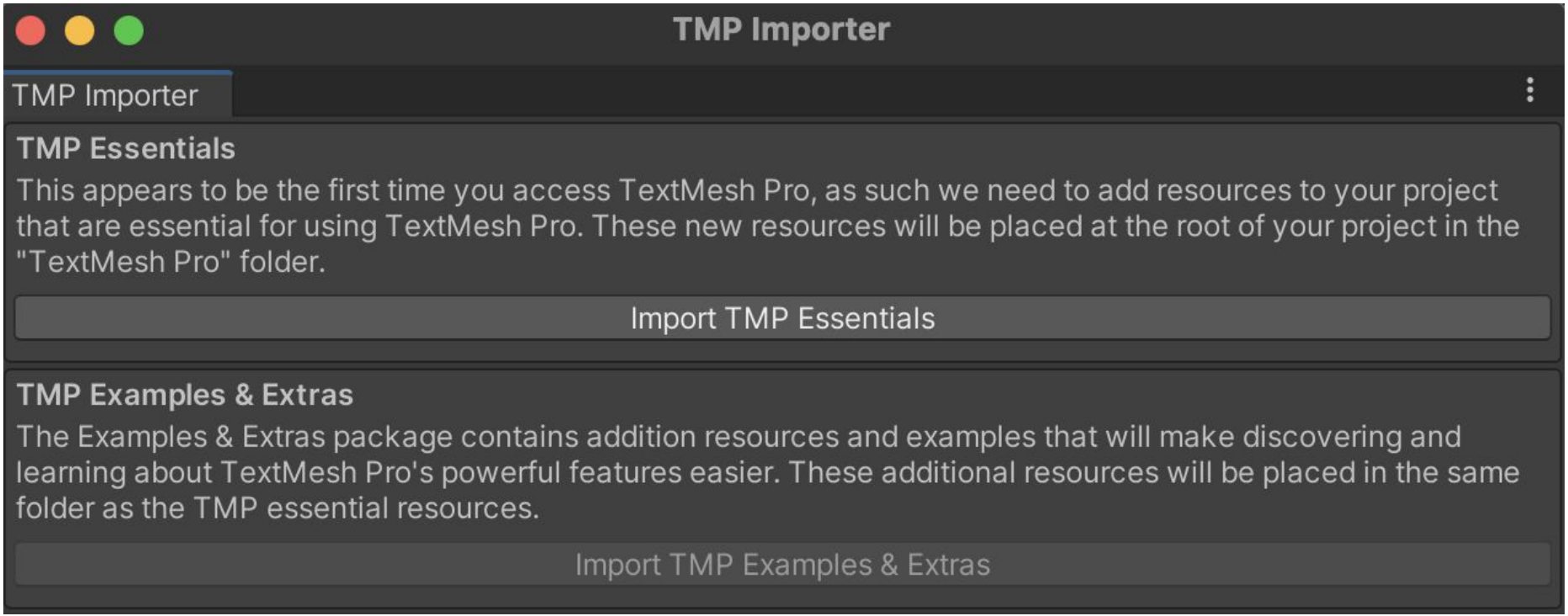


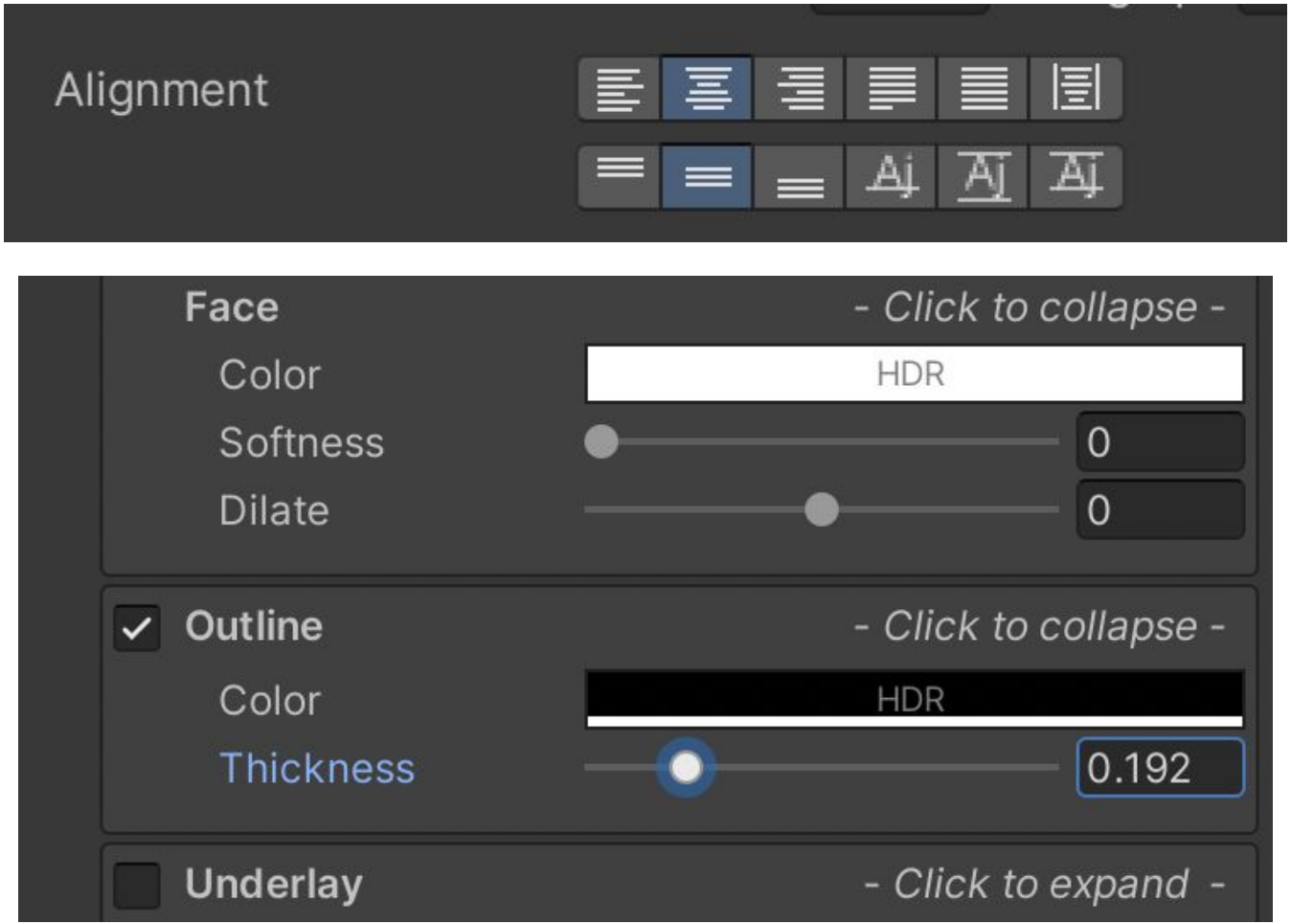
Image
Source Image
None (Sprite)
Color
Material
None (Material)
Raycast Target
Raycast Padding
Maskable


R
0.2621
G
0.2617
B
0.3490
A
0.3607
Hexadecimal
43435A
Swatches


Game
Game
Display 1
16:9 Aspect
Scale
1x
Norma
Mute Audio
Stats


Cut
Copy
Paste
Paste As Child
Rename
Duplicate
Delete
Select Children
Set as Default Parent
Create Empty
Create Empty Parent
2D Object
3D Object
Effects
Light
Audio
Video
UI
Image
Text - TextMeshPro
Raw Image
Panel
Toggle
Slider
middle
Pos X
0
Width
1200
Anchors
Pivot
X 0.5
Rotation
X 0
Scale
X 1
Canvas Renderer
Cull Transparent Mesh
Image
Source Image
None
Color


TMP Importer
TMP Importer
TMP Essentials
This appears to be the first time you access TextMesh Pro, as such we need to add resources to your project that are essential for using TextMesh Pro. These new resources will be placed at the root of your project in the "TextMesh Pro" folder.
Import TMP Essentials
TMP Examples & Extras
The Examples & Extras package contains addition resources and examples that will make discovering and learning about TextMesh Pro's powerful features easier. These additional resources will be placed in the same folder as the TMP essential resources.
Import TMP Examples & Extras


Alignment
Face
- Click to collapse -
Color
HDR
Softness
0
Dilate
0
Outline
- Click to collapse -
Color
HDR
Thickness
0.192
Underlay
- Click to expand -

TextMeshPro(日本語Font)

「フリーフォント」で検索かけて何かしらの日本語フォントを取ってくる

FONT TEST

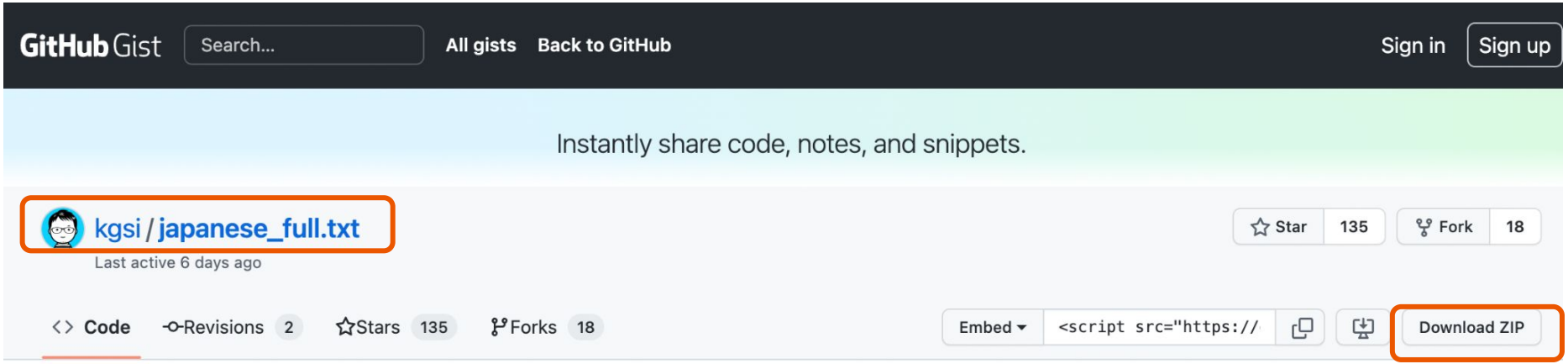
これは「こども丸ゴシック」Fontです。

これは「マメロン３Regular」Fontです。

これは「マメロン５Regular」Fontです。

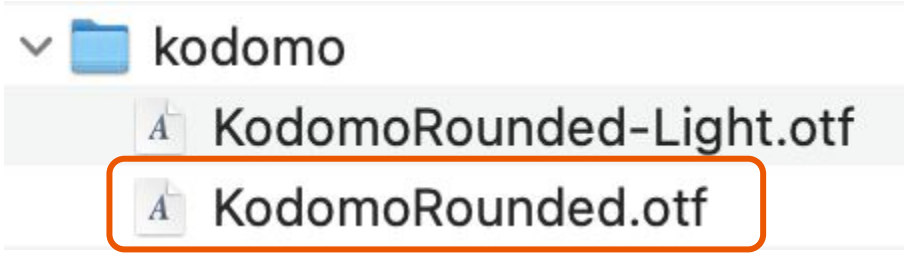
これは「源ノ角ゴシックRegular」Fontです。

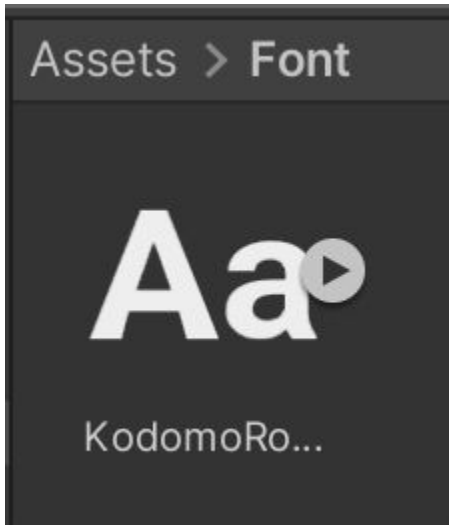
これは「源ノ角ゴシックHeavy」Fontです。

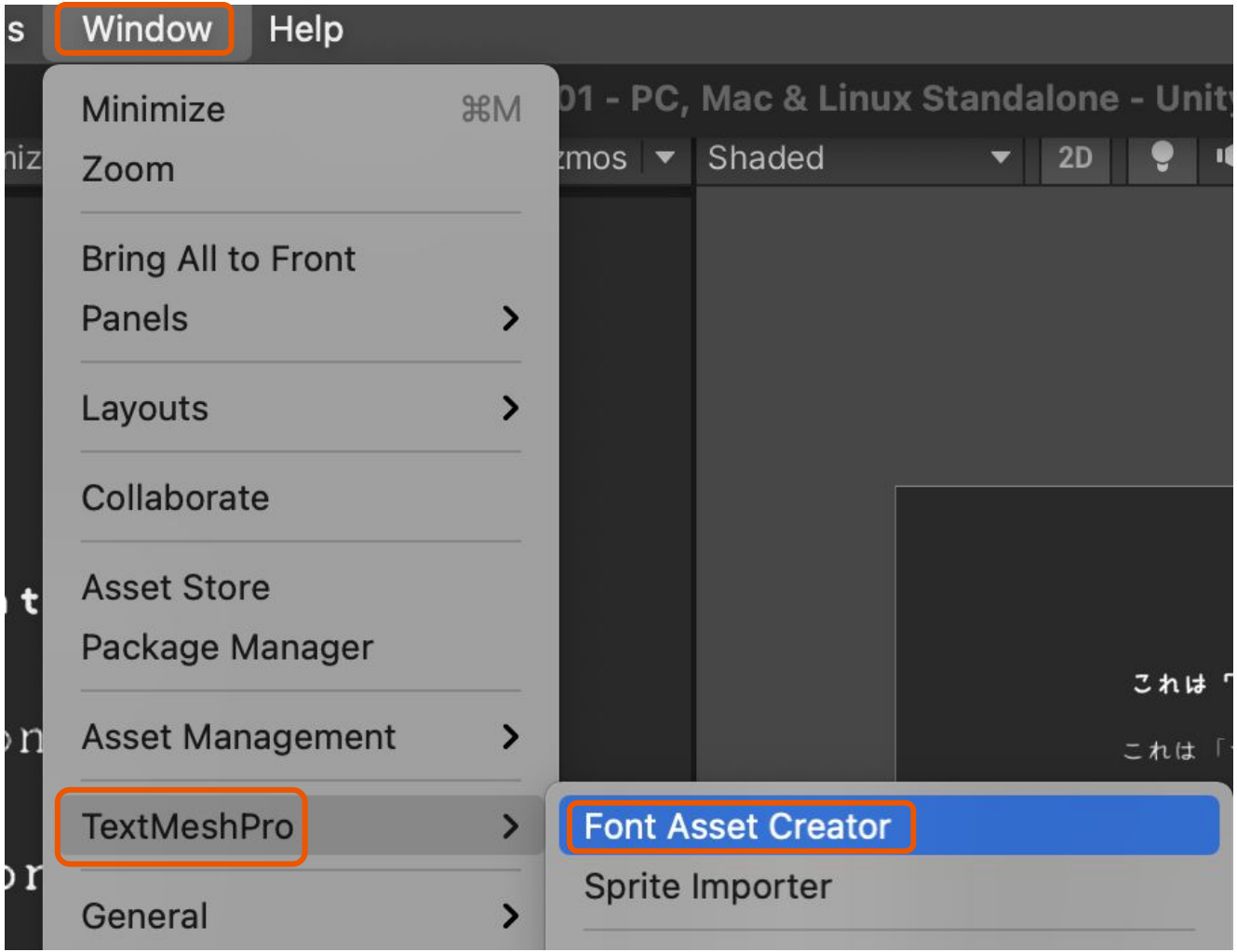


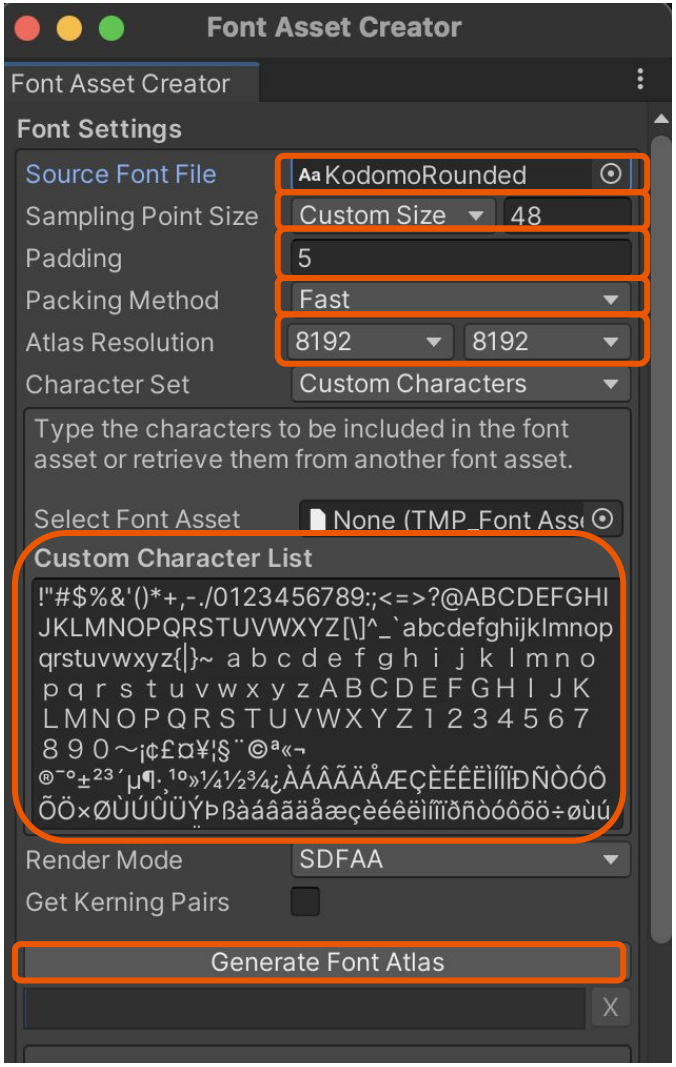
https://gist.github.com/kgsi/ed2f1c5696a2211c1fd1e1e198c96ee4?h=1

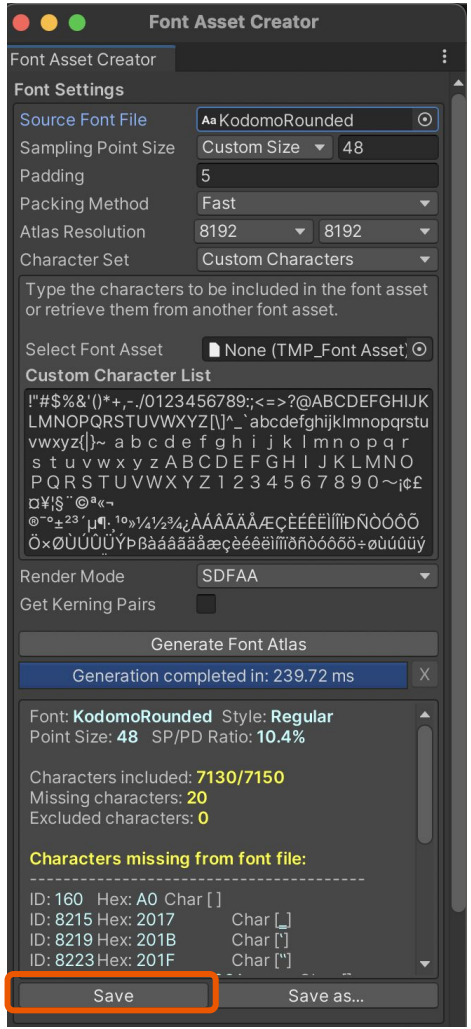
https://gist.github.com/kgsi/ed2f1c5696a2211c1fd1e1e198c96ee4?h=1


kodomo
KodomoRounded-Light.otf
KodomoRounded.otf

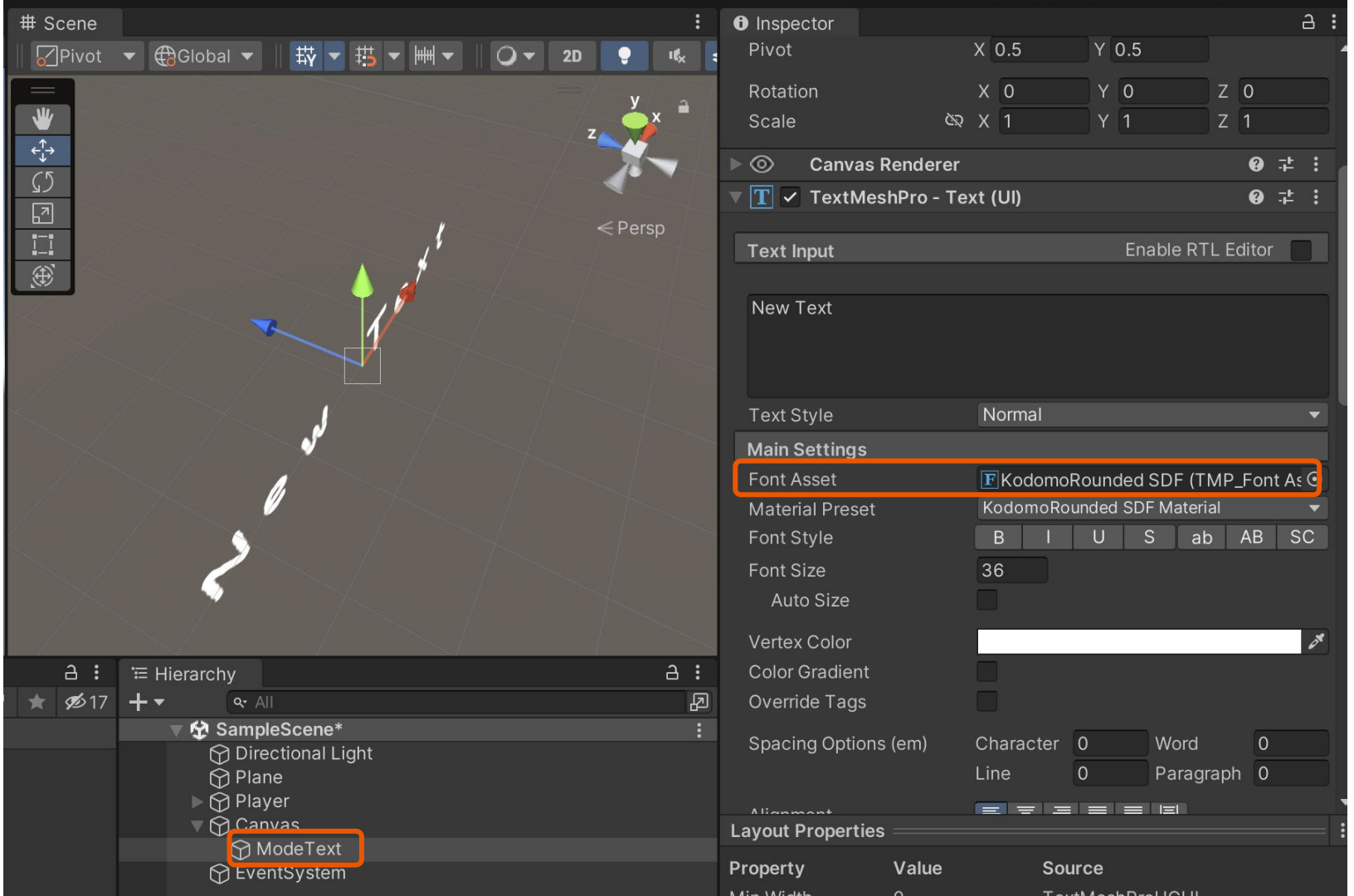

Assets > Font
Aa
KodomoRo...


Window
Help
Minimize ⌘M
Zoom
Bring All to Front
Panels
Layouts
Collaborate
Asset Store
Package Manager
Asset Management
TextMeshPro
General
Font Asset Creator
Sprite Importer
Shaded
2D

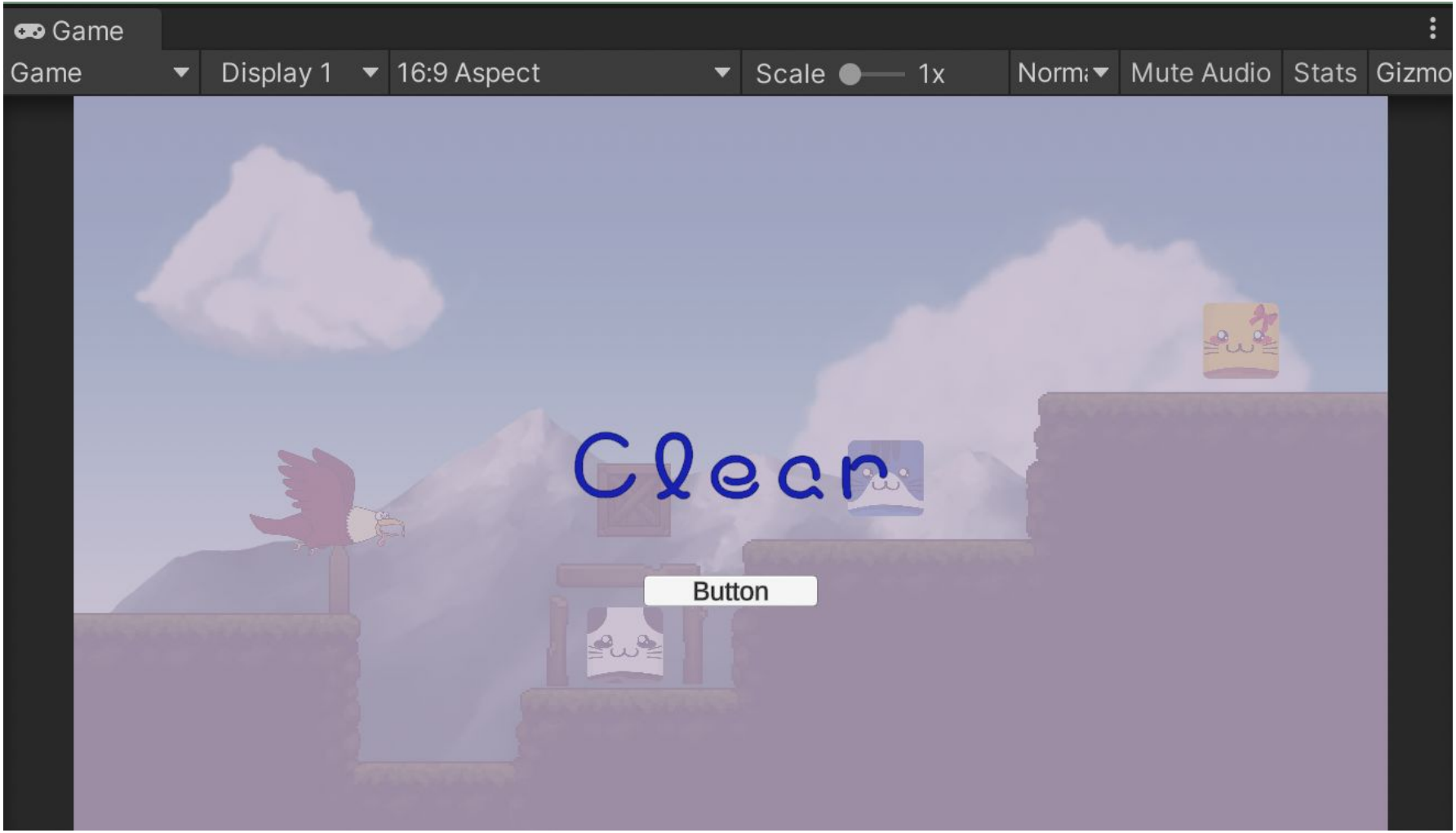

Font Asset Creator
Font Asset Creator
Font Settings
Source Font File
KodomoRounded
Sampling Point Size
Custom Size
48
Padding
5
Packing Method
Fast
Atlas Resolution
8192
8192
Character Set
Custom Characters
Type the characters to be included in the font asset or retrieve them from another font asset.
Select Font Asset
None (TMP_Font Ass
Custom Character List
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHI
JKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnop
qrstuvwxyz{|}~ a b c d e f g h i j k l m n o
p q r s t u v w x y z A B C D E F G H I J K
L M N O P Q R S T U V W X Y Z 1 2 3 4 5 6 7
8 9 0 〜¡¢£¤¥¦§¨©ª«¬
®¯°±²³´µ¶·¸¹º»¼½¾¿ÀÁÂÃÄÅÆÇÈÉÊËÌÍÎÏÐÑÒÓÔ
ÕÖ×ØÙÚÛÜÝÞßàáâãäåæçèéêëìíîïðñòóôõö÷øùú
Render Mode
SDFAA
Get Kerning Pairs
Generate Font Atlas
X

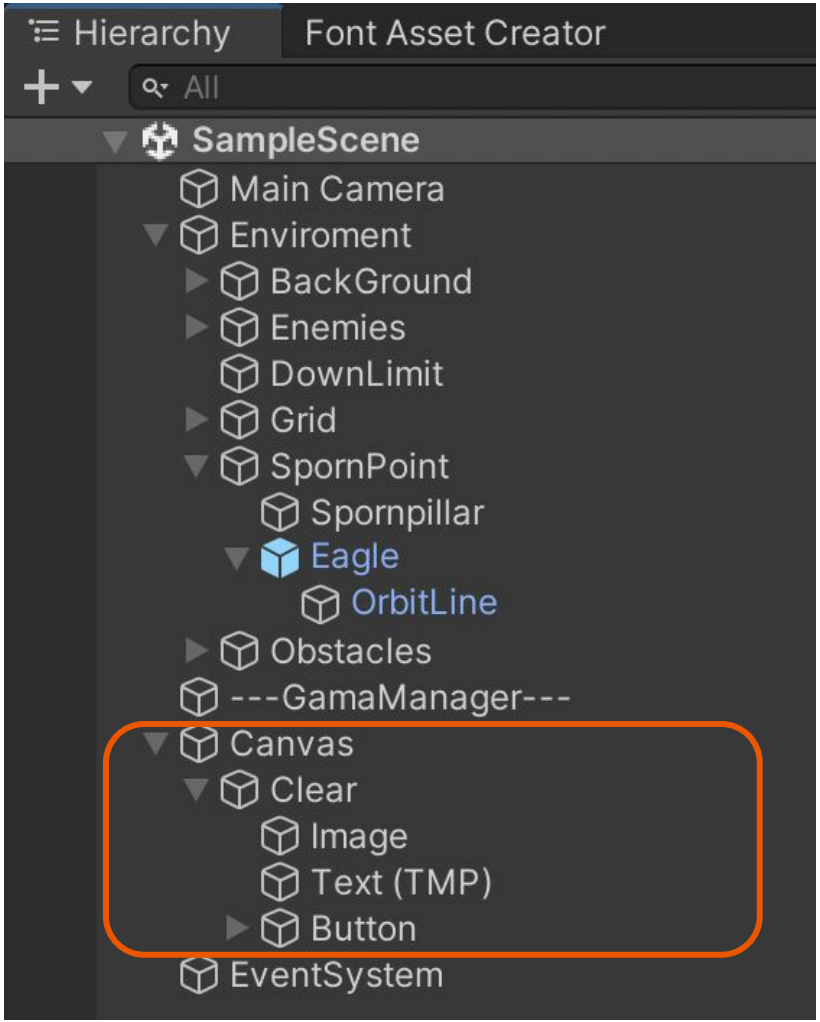

Font Asset Creator
Font Asset Creator
Font Settings
Source Font File
KodomoRounded
Sampling Point Size
Custom Size
48
Padding
5
Packing Method
Fast
Atlas Resolution
8192
8192
Character Set
Custom Characters
Type the characters to be included in the font asset or retrieve them from another font asset.
Select Font Asset
None (TMP_Font Asset)
Custom Character List
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJK
LMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstu
vwxyz{|}~ a b c d e f g h i j k l m n o p q r
s t u v w x y z A B C D E F G H I J K L M N O
P Q R S T U V W X Y Z 1 2 3 4 5 6 7 8 9 0 〜¡¢£
¤¥¦§¨©ª«¬
®¯°±²³´µ¶·¸¹º»¼½¾¿ÀÁÂÃÄÅÆÇÈÉÊËÌÍÎÏÐÑÒÓÔÕ
Ö×ØÙÚÛÜÝÞßàáâãäåæçèéêëìíîïðñòóôõö÷øùúûüý
Render Mode
SDFAA
Get Kerning Pairs
Generate Font Atlas
Generation completed in: 239.72 ms
X
Font: KodomoRounded Style: Regular
Point Size: 48 SP/PD Ratio: 10.4%
Characters included: 7130/7150
Missing characters: 20
Excluded characters: 0
Characters missing from font file:
ID: 160 Hex: A0 Char [ ]
ID: 8215 Hex: 2017 Char [‗]
ID: 8219 Hex: 201B Char [‛]
ID: 8223 Hex: 201F Char [‟]
Save
Save as...


Assets > Font
Aa
F
KodomoRo...
KodomoRo...

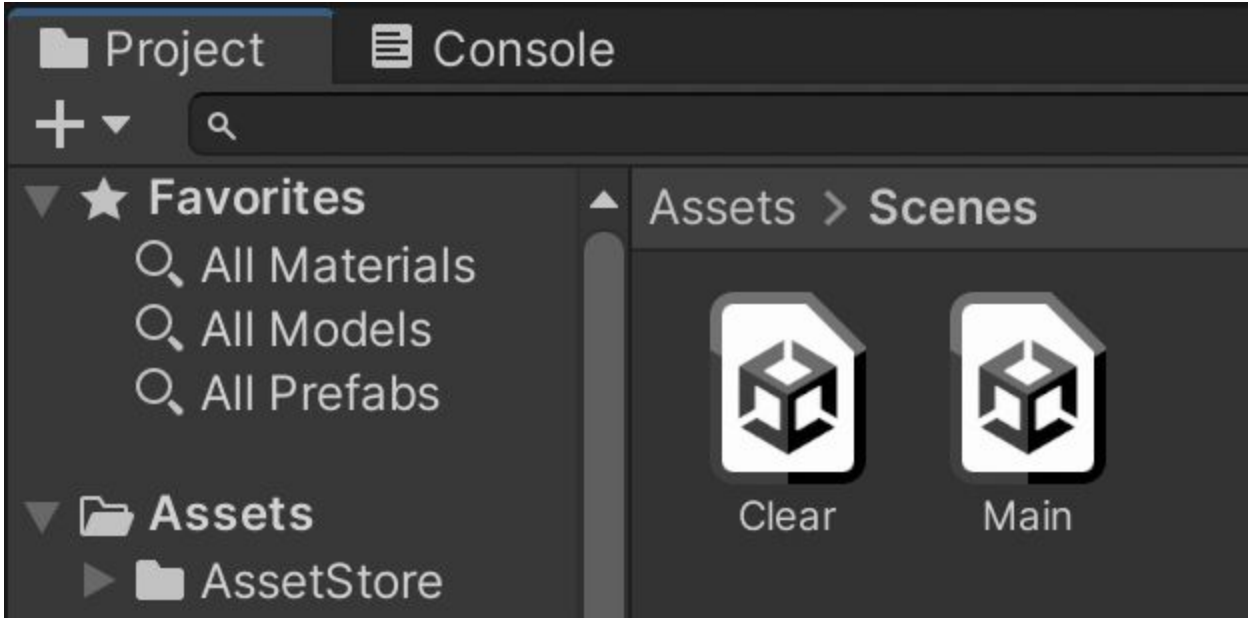

Scene
Pivot
Global
2D
Persp
Inspector
Pivot X 0.5 Y 0.5
Rotation X 0 Y 0 Z 0
Scale X 1 Y 1 Z 1
Canvas Renderer
TextMeshPro - Text (UI)
Text Input
Enable RTL Editor
New Text
Text Style
Normal
Main Settings
Font Asset
KodomoRounded SDF (TMP_Font As
Material Preset
KodomoRounded SDF Material
Font Style
B I U S ab AB SC
Font Size
36
Auto Size
Vertex Color
Color Gradient
Override Tags
Spacing Options (em)
Character 0
Word 0
Line 0
Paragraph 0
Hierarchy
All
SampleScene*
Directional Light
Plane
Player
Canvas
ModeText
EventSystem
Layout Properties
Property
Value
Source

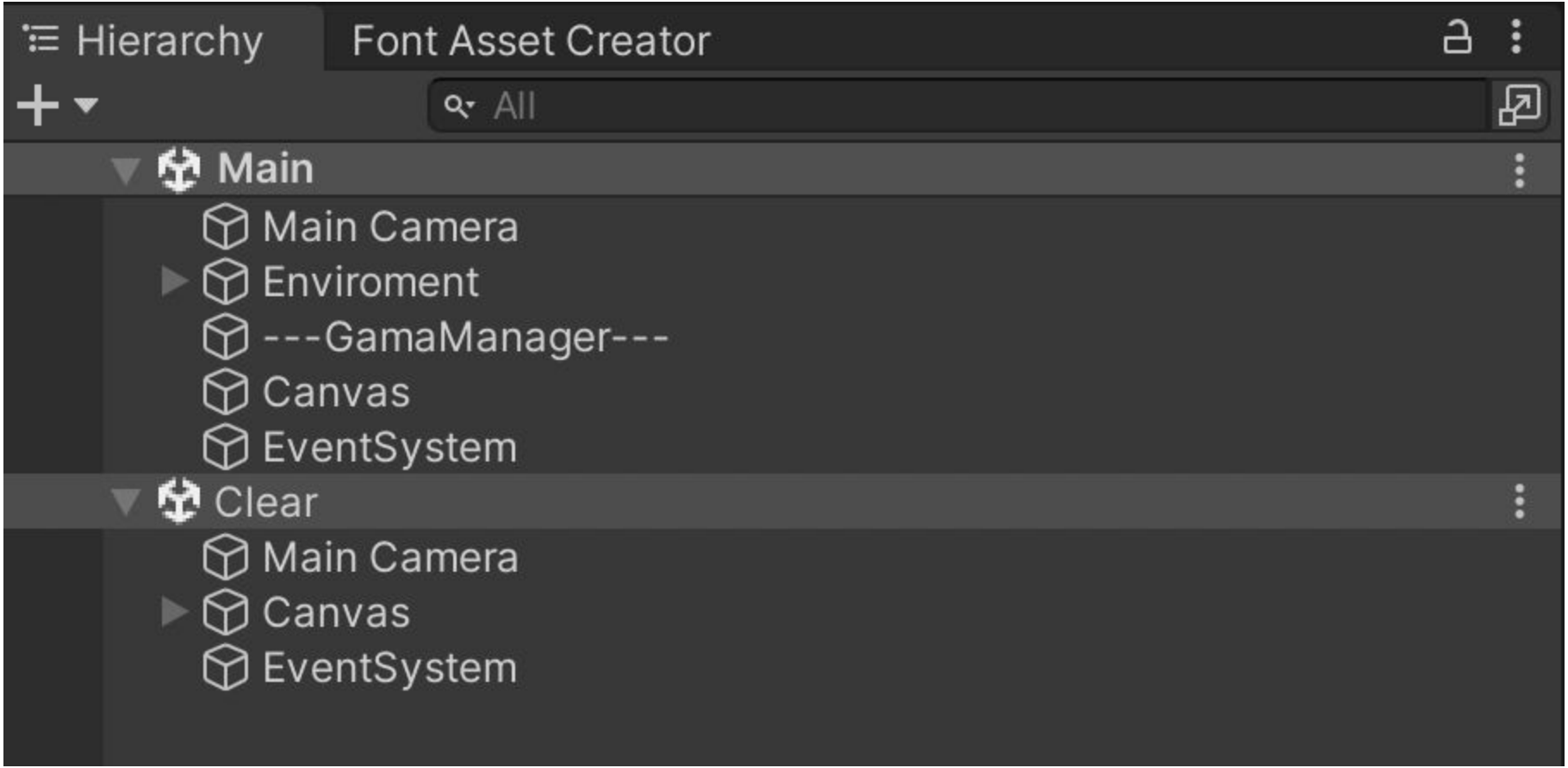

Game
Game
Display 1
16:9 Aspect
Scale
1x
Norm
Mute Audio
Stats
Gizm
Clear

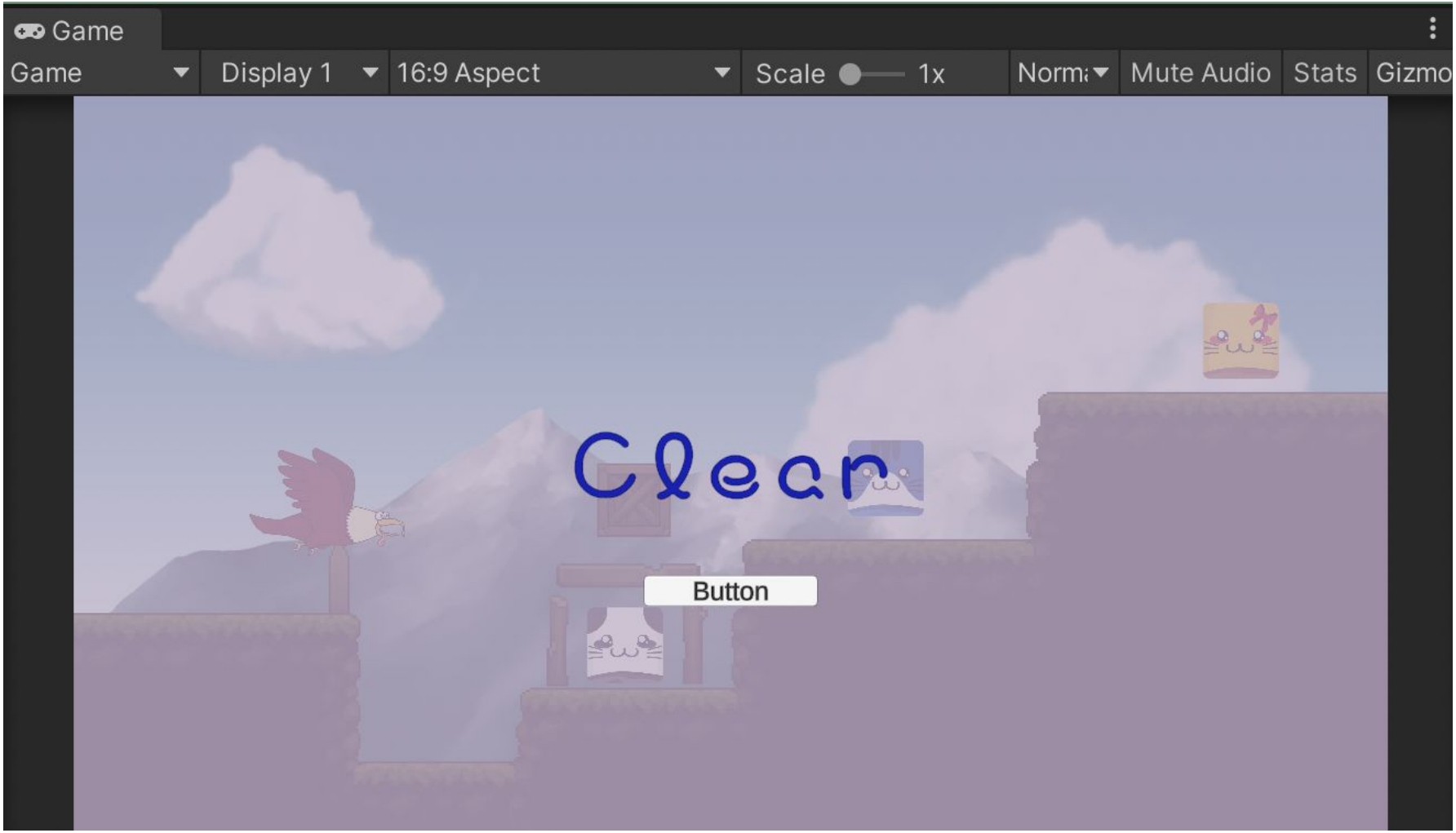

Game
Game
Display 1
16:9 Aspect
Scale
1x
Norma
Mute Audio
Stats
Gizmo
Clear
Button

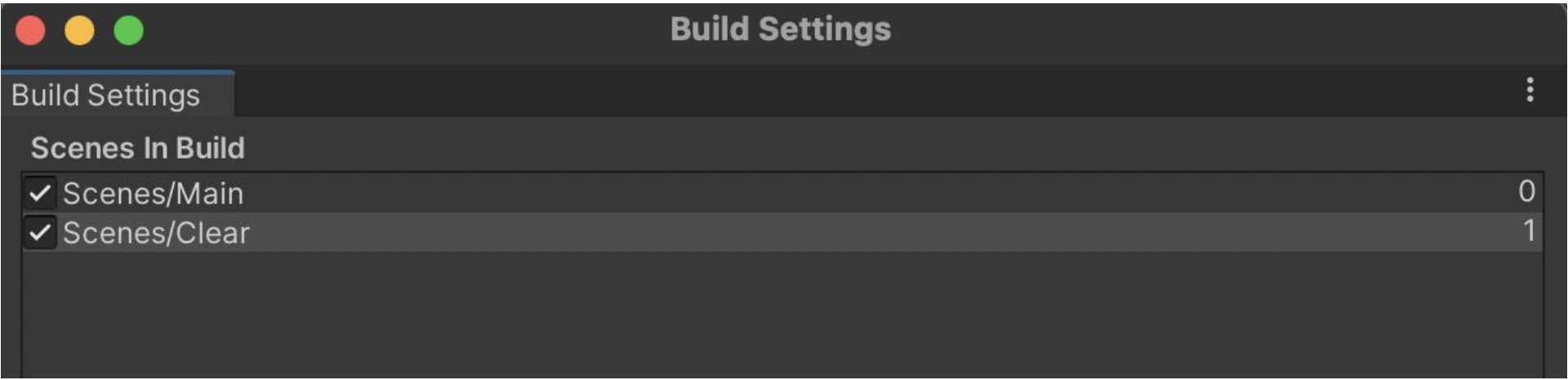

Hierarchy
Font Asset Creator
All
SampleScene
Main Camera
Enviroment
BackGround
Enemies
DownLimit
Grid
SpornPoint
Spornpillar
Eagle
OrbitLine
Obstacles
---GamaManager---
Canvas
Clear
Image
Text (TMP)
Button
EventSystem

```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;
using UnityEngine.SceneManagement;
using UnityEngine.UI;

public class Retry : MonoBehaviour
{
    private void Start()
    {
        GetComponent<Button>().onClick.AddListener(() =>
          { SceneManager.LoadScene(SceneManager.GetActiveScene().name); }
        );
    }
}
```


Project
Console
Favorites
All Materials
All Models
All Prefabs
Assets
AssetStore
Assets > Scenes
Clear
Main


Hierarchy
Font Asset Creator
All
Main
Main Camera
Enviroment
---GamaManager---
Canvas
EventSystem
Clear
Main Camera
Canvas
EventSystem

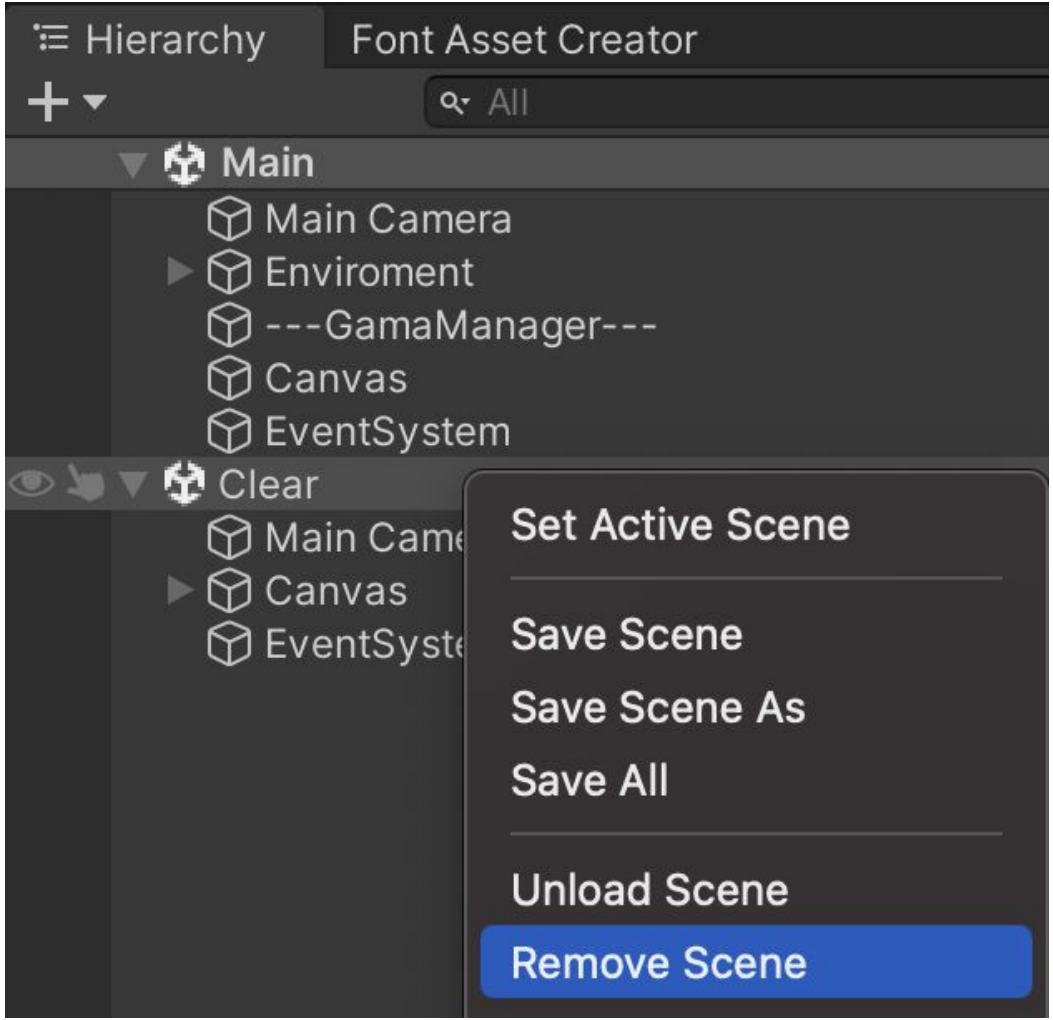

Game
Game
Display 1
16:9 Aspect
Scale
1x
Norma
Mute Audio
Stats
Gizmo
Clear
Button


Build Settings
Build Settings
Scenes In Build
Scenes/Main
0
Scenes/Clear
1

GameManager.cs

```
using UnityEngine.SceneManagement;
```

```
///<summary>
/// 敵の数を減らす
///</summary>
public void KillEnemy()
{
    _enemyCount--;
    Debug.Log(_enemyCount);
    if (_enemyCount == 0)
    {
        Debug.Log("クリア");
        SceneManager.LoadSceneAsync("Clear",LoadSceneMode.Additive);
    }
}
```

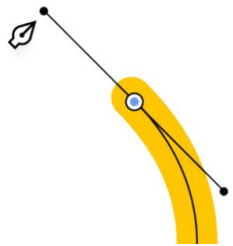

Hierarchy
Font Asset Creator
All
Main
Main Camera
Enviroment
---GamaManager---
Canvas
EventSystem
Clear
Main Came
Canvas
EventSyste
Set Active Scene
Save Scene
Save Scene As
Save All
Unload Scene
Remove Scene

サインアップ

一人ではすごいものは完成できない。

Figmaでは、チームがよりよい製品をより早く提供できるように、全員がデザインプロセスに参加できるようにします。

Figmaを無料で体験する



実行してみる

あとは、
・残機を設定、表示　　・GameOver処理
・ステージを増やしてシーン遷移、タイトル　・カメラの挙動を変える
・BGM、SE　　・エフェクト
などなど