

ROCKFALL GAME

GROUP MEMBERS:

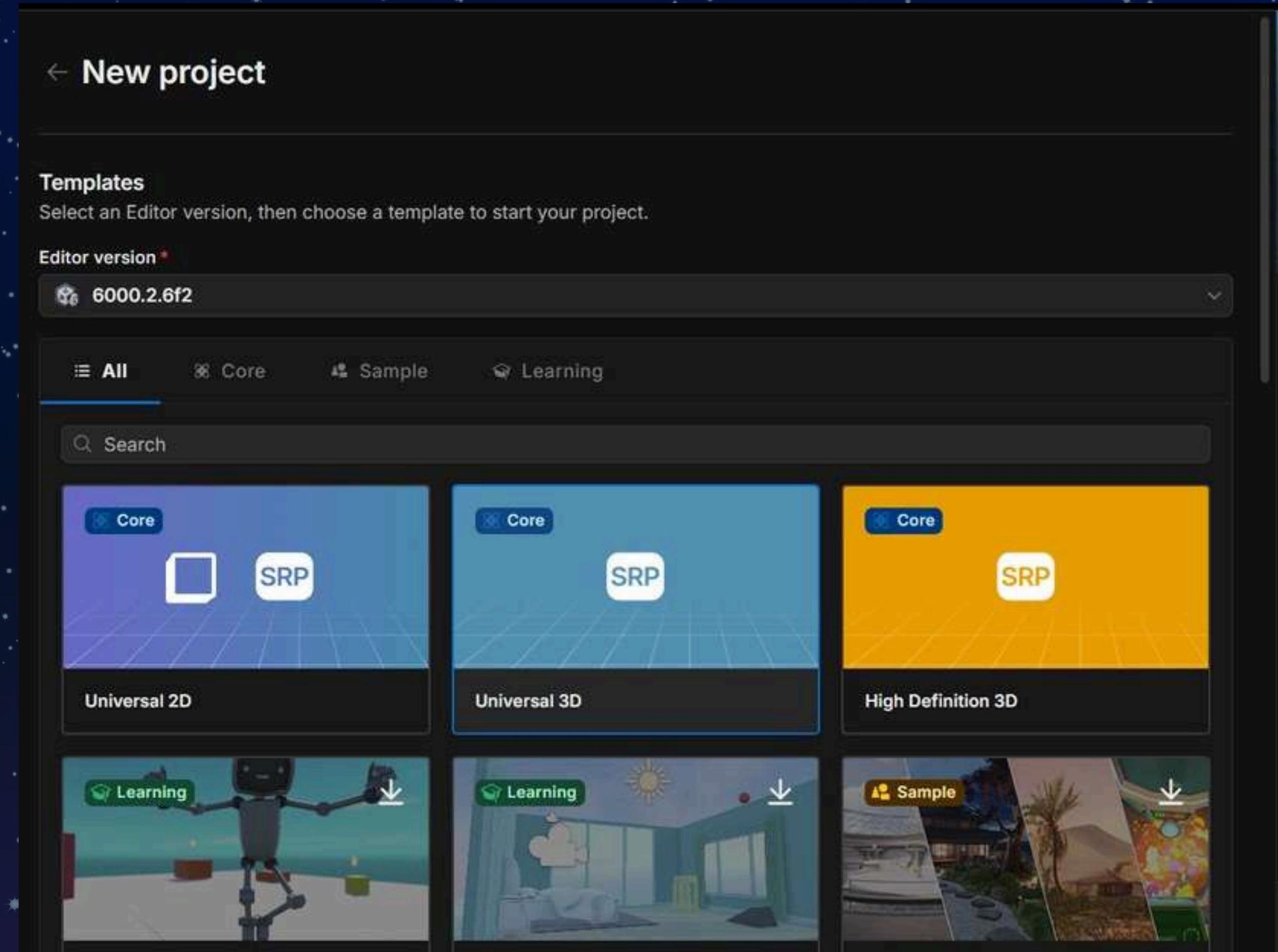
ABARA, JEZREAL
ABOGADO, NYTHAN
CEZAR, DAVIDSON



STEP BY STEP
ON HOW TO
CREATE
ROCKFALL GAME

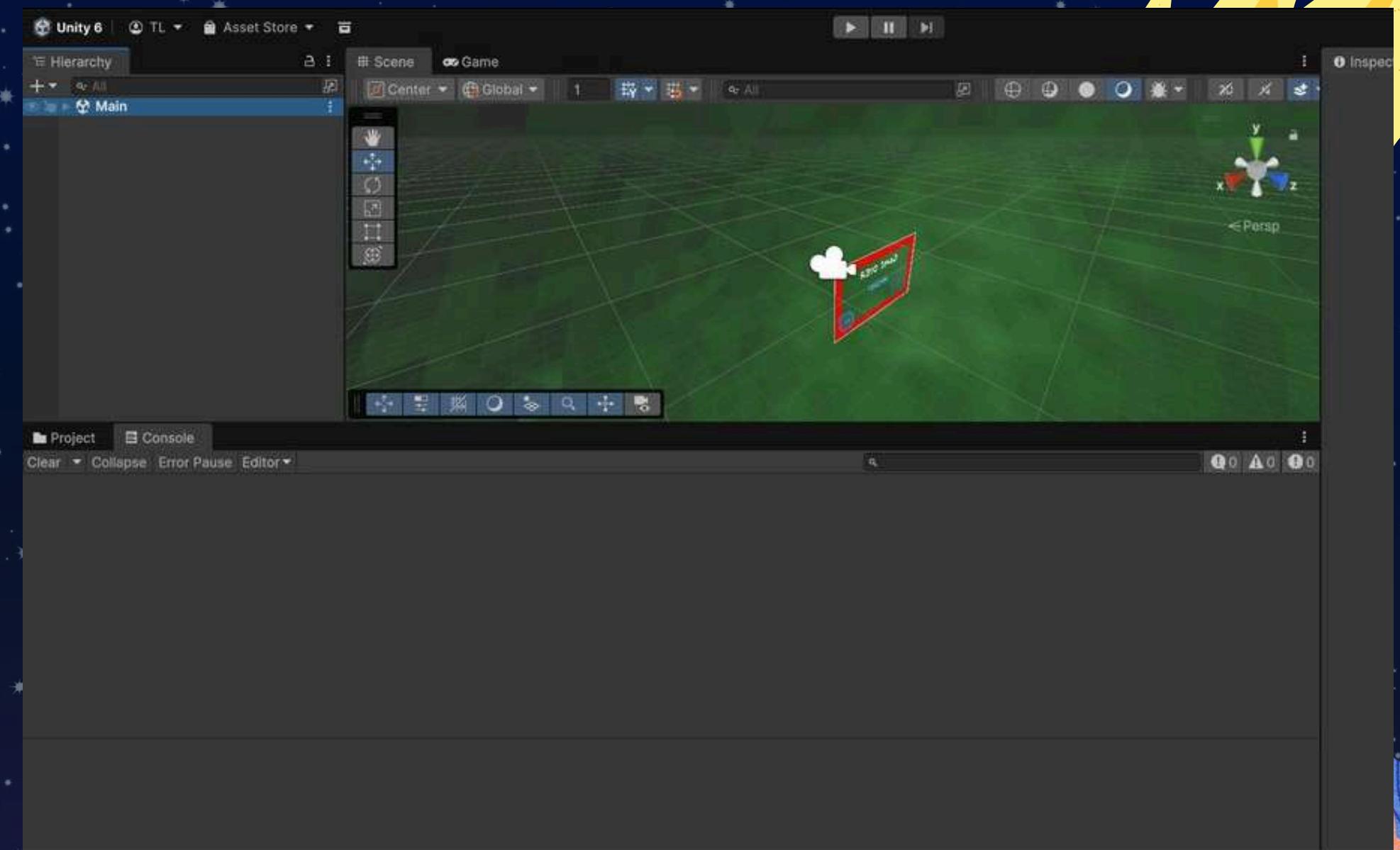
STEP 1

- OPEN UNITY HUB
- CLICK "PROJECT"
- CLICK NEW PROJECT
- PROJECT NAME: ROCKFALL
- CLICK CREATE PROJECT



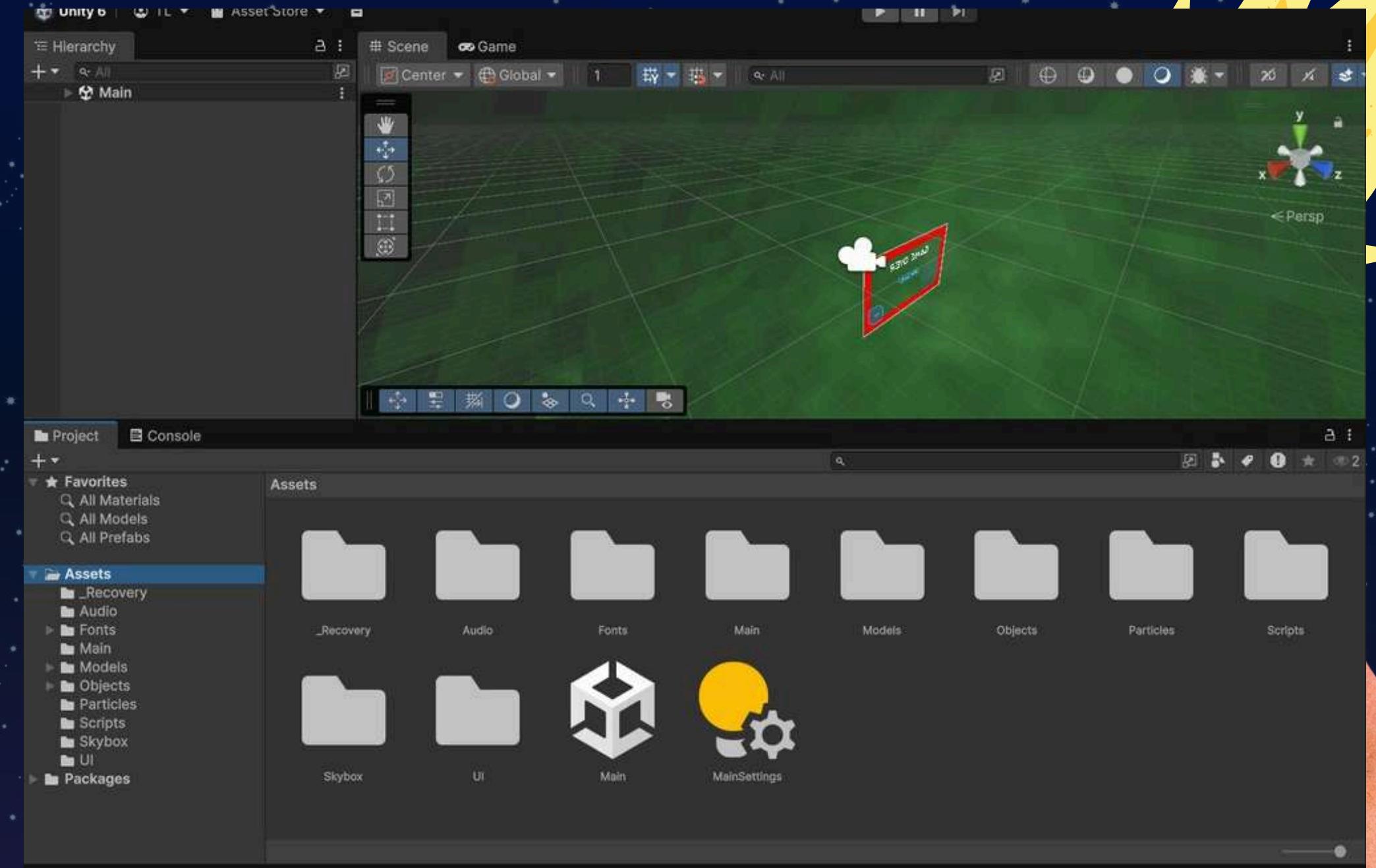
STEP 2

- IN UNITY MENU BAR: CLICK FILE THEN
SAVE AS
- NEXT IS NAME THE SCENE:
- CLICK MAIN
- THEN SAVE IT INSIDE THE ASSET
FOLDER



STEP 3

- IMPORT THE ASSET PACKAGE
- LOCATE THE .UNITYPACKAGE FILE FROM THE BOOK'S DOWNLOAD
- DOUBLE CLICK THE FILE
- (A WINDOW WILL APPEAR)
- CLICK "IMPORT"



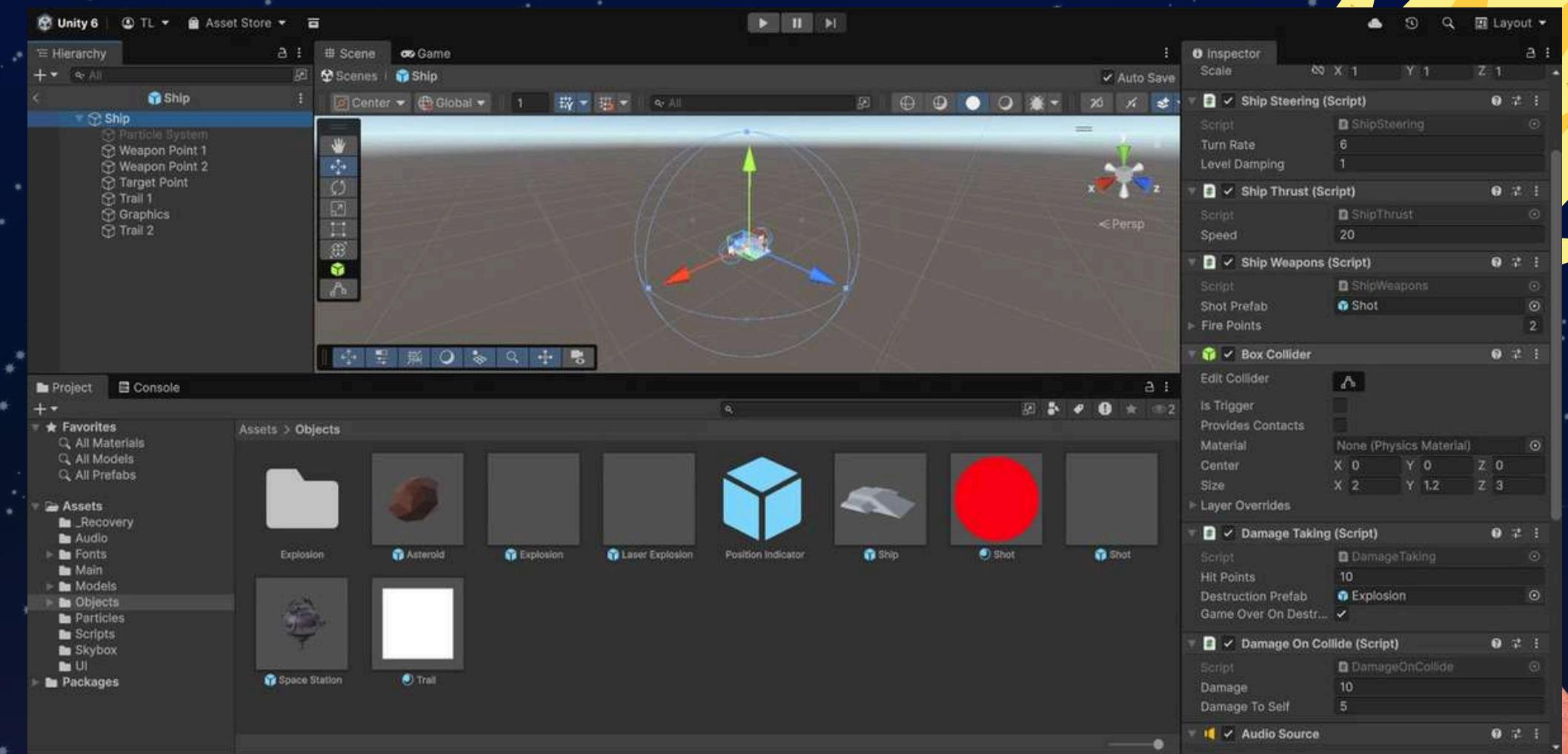
STEP 4

- CREATE EMPTY OBJECT - TOP MENU: GAMEOBJECT > CREATE EMPTY THEN NAME IT "SHIP"
- ADD 3D MODEL - OPEN MODEL FOLDER AND DRAG SHIP MODEL INTO SHIP OBJECT
- RENAME MODEL - SELECT THE MODEL (CHILD), PRESS RIGHT CLICK THEN RENAME, (RENAME IT TO GRAPHICS)
- RESET MODEL POSITION - SELECT GRAPHICS, IN INSPECTOR> TRANSFORM COMPONENT> CLICK GEAR ICON AND LASTLY SELECT RESET BUTTON



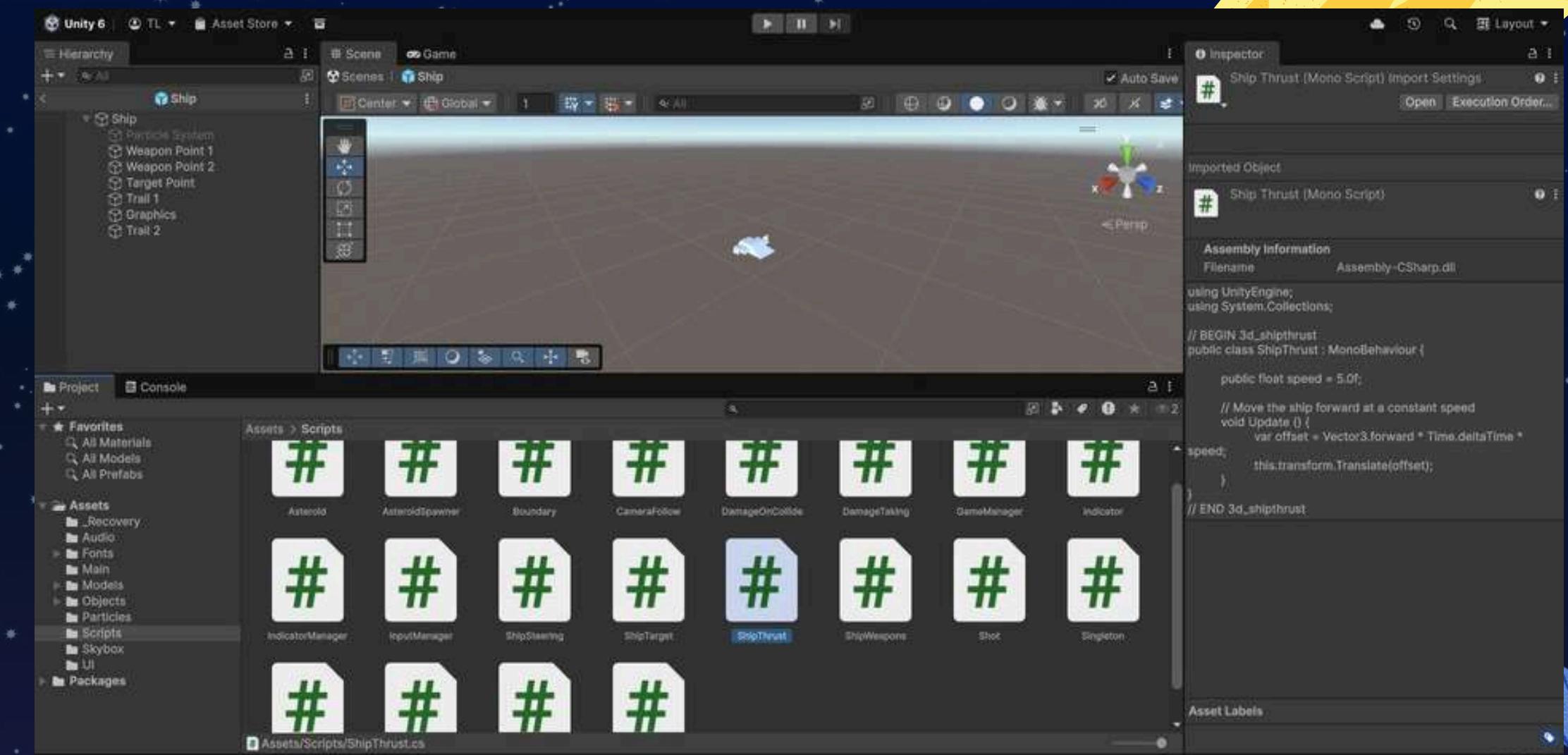
STEP 5

- ADD COLLISION TO THE SHIP
- SELECT SHIP
- IN INSPECTOR AND CLICK ADD COMPONENT
- SEARCH FOR:
- BOX COLLIDER
- ENABLE ITS TRIGGER
- SET SIZE TO X = 2, Y = 1.2, Z = 3



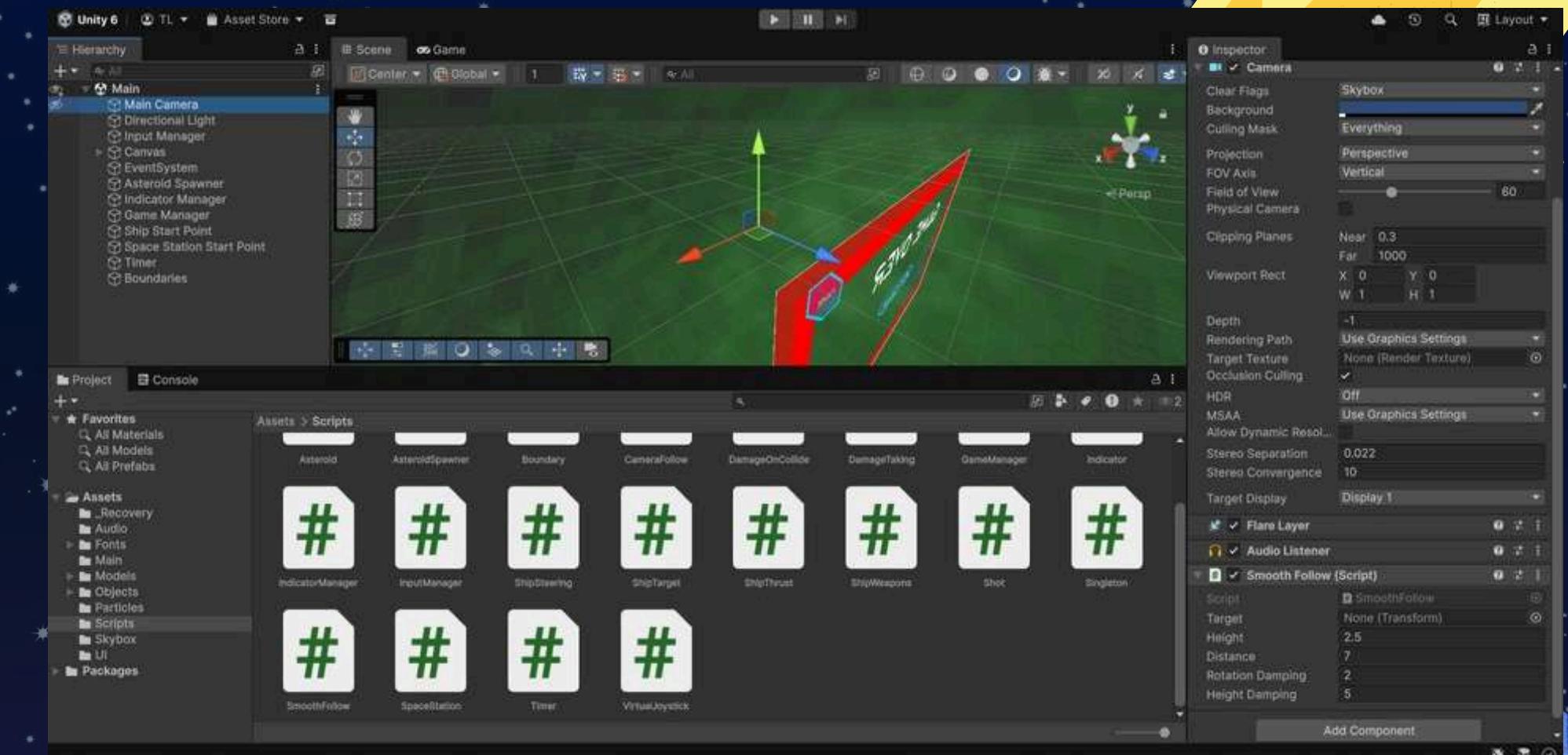
STEP 6

- ADD FORWARD MOVEMENT
- SELECT SHIP
- INSPECTOR>ADD COMPONENT
- CLICK NEW SCRIPT
- NAME IT SHIPTHUST
- CLICK CREATE AND ADD
- REPLACE THE CODE EITH THE MODULE



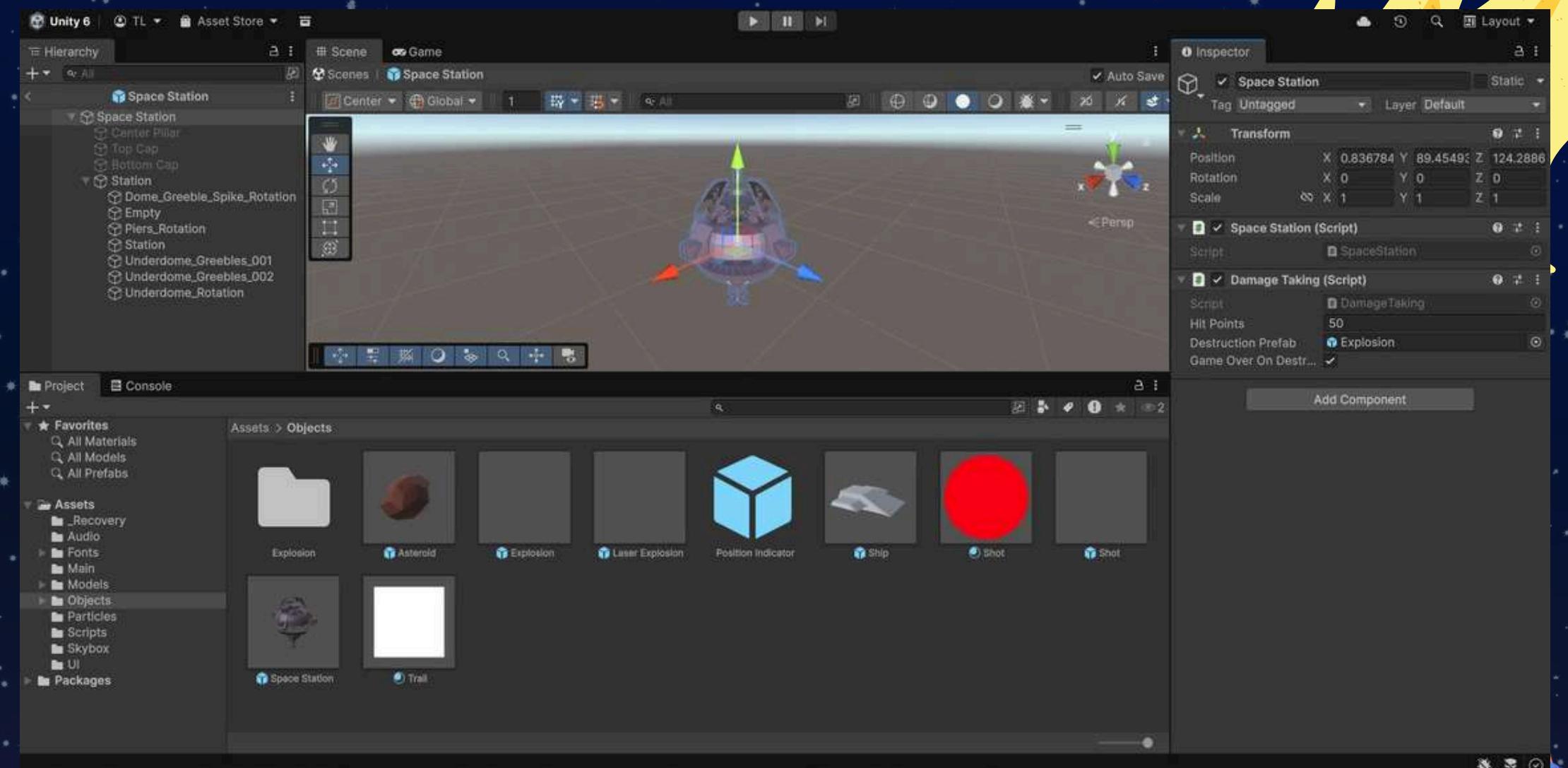
STEP 7

- MAKE CAMERA FOLLOW SMOOTHLY
- CREATE SCRIPT - SELECT MAIN CAMERA, ADD COMPONENT>NEW SCRIPT> NAME: SMOOTHFOLLOW
- ASSIGN THE SHIP AS TARGET - SELECT MAIN CAMERA, IN SMOOTHFOLLOW> TARGET> DRAG SHIP TO IT



STEP 8

- ADD THE SPACE STATION
- ADD STATION OBJECT -
GAMEOBJECT> CREATE EMPTY
- NAME: SPACE STATION
- DRAG STATION MODEL ONTO IT
- RESET POSITION ON THE STATION
CHILD MESH



STEP 9

- ADD SPACE SKYBOX

1. CREATE MATERIAL

- ASSETS - CREATE - MATERIAL
- NAME:SKYBOX
- SELECT IT - INSPECTOR - SHADER - SKYBOX - 6 SIDED

2. ASSIGN TEXTURES

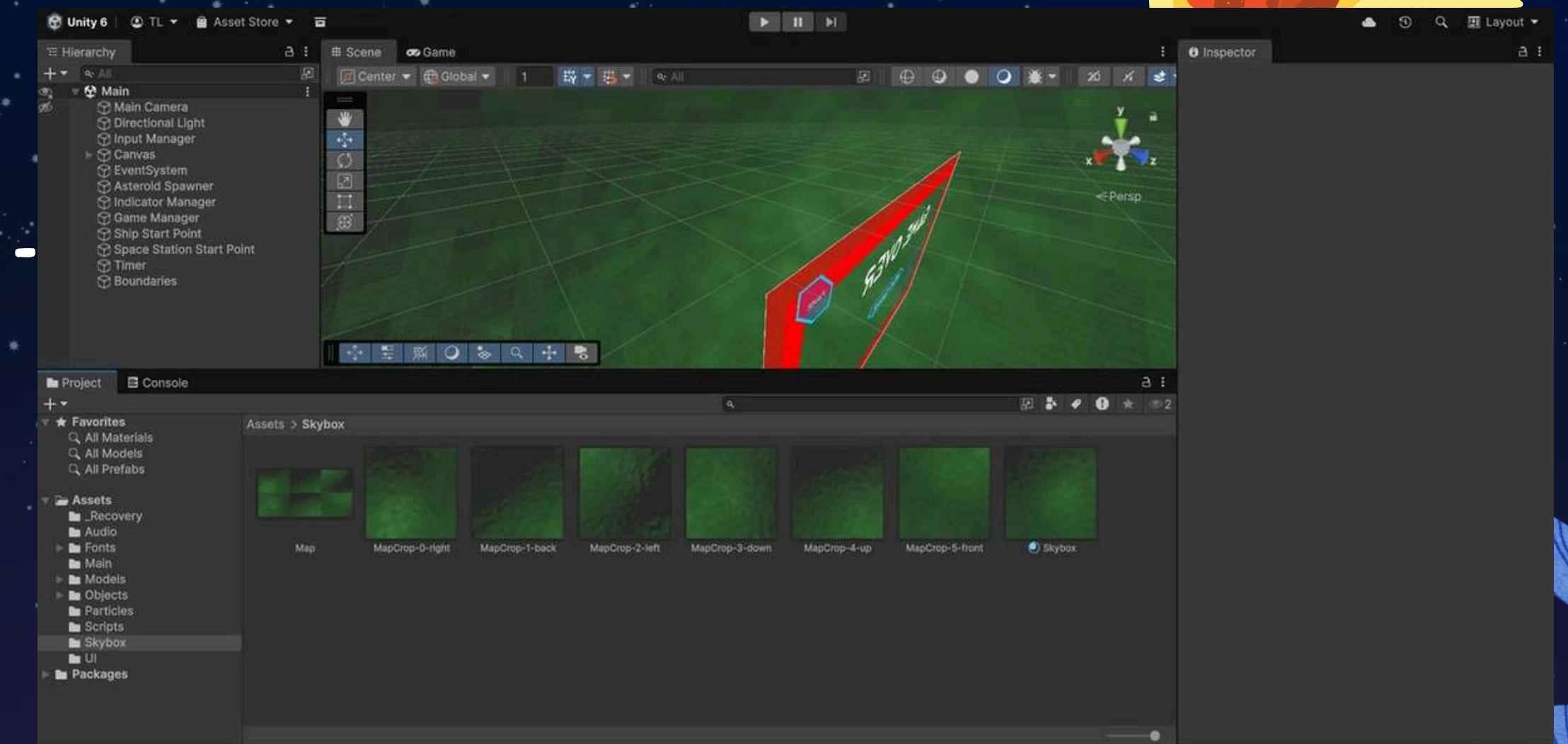
DRAG EACH TEXTURE FROM SKYBOX

FOLDER INTO MATCHING SLOT:

- FRONT
- BACK
- LEFT
- RIGHT
- UP
- DOWN

3. APPLY SKYBOX TO SCENE

- WINDOW - RENDERING - LIGHTING SETTINGS
- SKYBOX MATERIAL - DRAG IN SKYBOX MATERIAL



STEP 10

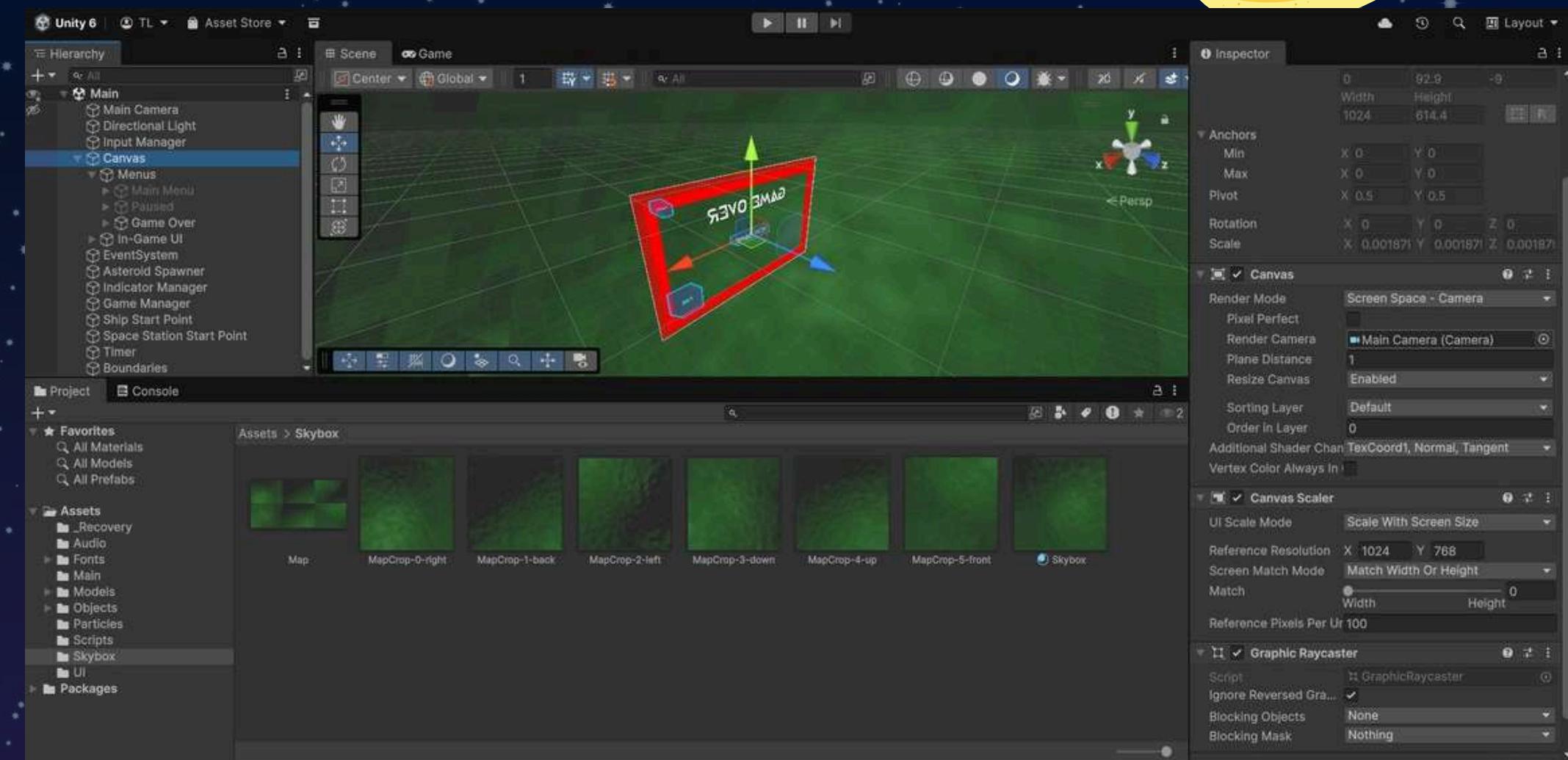
- CREATE CANVAS FOR UI

1. GAMEOBJECT - UI - CANVAS

2. SELECT CANVAS - INSPECTOR:

- RENDER MODE: SCREEN SPACE - CAMERA
- RENDER CAMERA: DRAG MAIN CAMERA
- PLANE DISTANCE: 1

1. IN CANVAS SCALER
 - IN SCALE MODE: SCALE WITH SCREEN SIZE
 - REFERENCE RESOLUTION: 1024 X 768



STEP 11

- **BUILD VIRTUAL JOYSTICK**

- **CREATE JOYSTICK PAD**

1. **RIGHT-CLICK CANVAS - UI - PANEL**

2. **NAME IT: JOYSTICK**

3. **SIZE 250X250**

4. **ANCHOR BOTTOM-LEFT**

5. **CHANGE ITS IMAGE:**

6. **SOURCE IMAGE = PAD (FROM UI FOLDER)**

- **CREATE THUMB**

1. **RIGHT-CLICK STEERING JOYSTICKUI- PANEL**

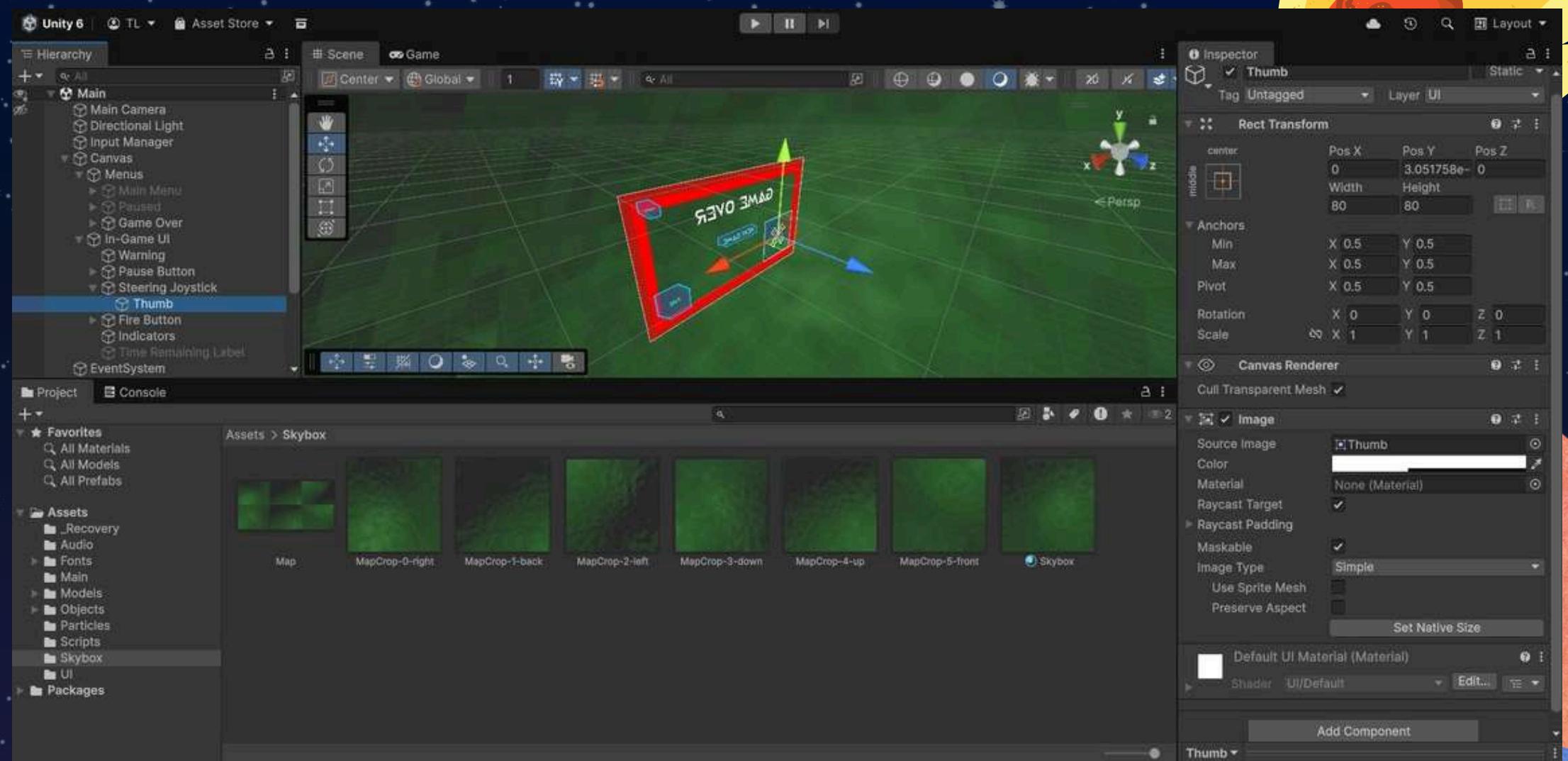
2. **NAME IT: THUMB**

3. **SIZE = 80X80**

4. **ANCHOR - CENTER**

5. **POSITION X0, Y = 0**

6. **SOURCE IMAGE - THUMB SPRITE**



STEP 12

INCLUDE VIRTUALJOYSTICK.CS

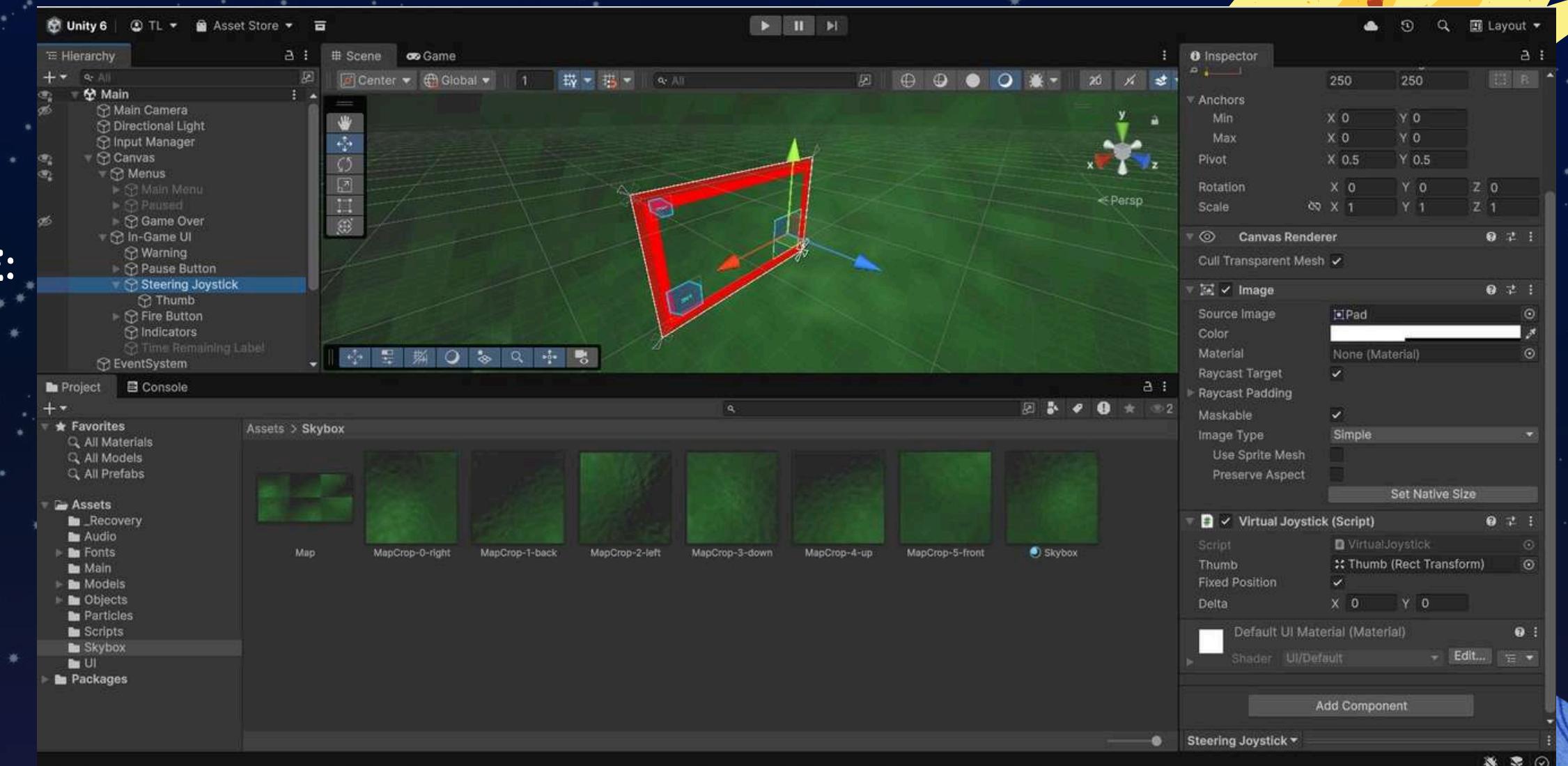
- INCLUDE A SCRIPT
- CHOOSE THE JOYSTICK
- ADD COMPONENT → NEW SCRIPT → GIVE IT A NAME:
THE VIRTUAL JOYSTICK

- CHANGE THE ENTIRE SCRIPT TO:
(BOOK SCRIPT IN ITS ENTIRETY)

- ASSIGN A THUMB REFERENCE
- CHOOSE THE JOYSTICK
- DRAG THE THUMB OBJECT INTO THE THUMB SLOT.

- TEST (USING A MOUSE FOR PC TESTING):

- CLICK AND DRAG THE JOYSTICK TO MOVE THE PAD
AND THUMB,
- AND DELTA VALUES ARE UPDATED.



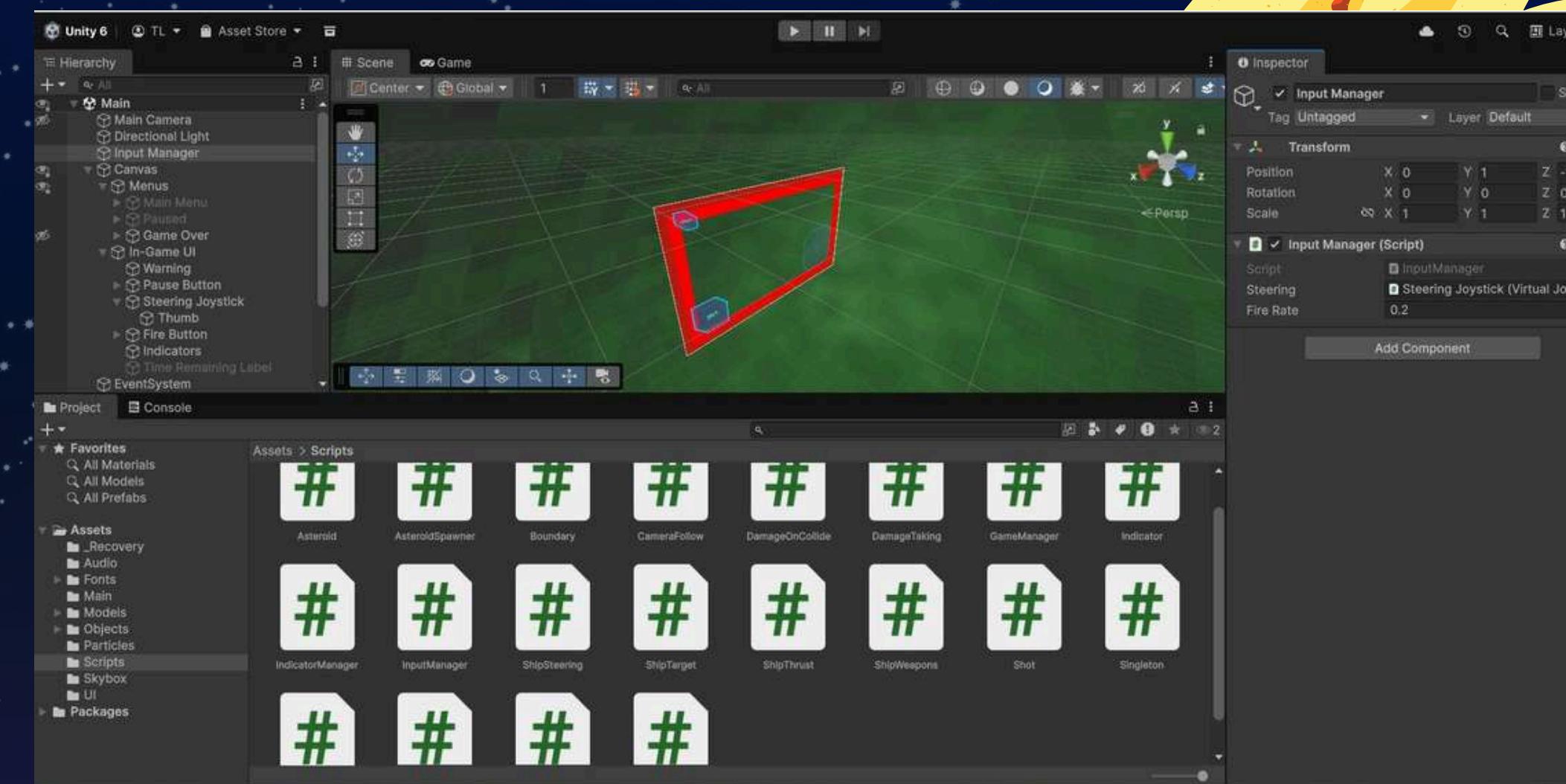
STEP 13

INCLUDE A SINGLETON INPUT MANAGER

- MAKE **SINGLETON.CS**
- ASSETS → CREATE → C# SCRIPT → NAME: **SINGLETON**
- CHANGE THE CODE TO THE ONE FOUND IN THE BOOK.

CREATE INPUT MANAGER

- GAMEOBJECT → CREATE EMPTY
- NAME: **INPUT MANAGER**
- ADD COMPONENT → NEW SCRIPT → NAME: **INPUTMANAGER**
- REPLACE ITS CODE WITH THE ONE IN THE BOOK
- ASSIGN THE JOYSTICK REFERENCE
- CHOOSE INPUT MANAGER.
- DRAG THE "STEERING" JOYSTICK.



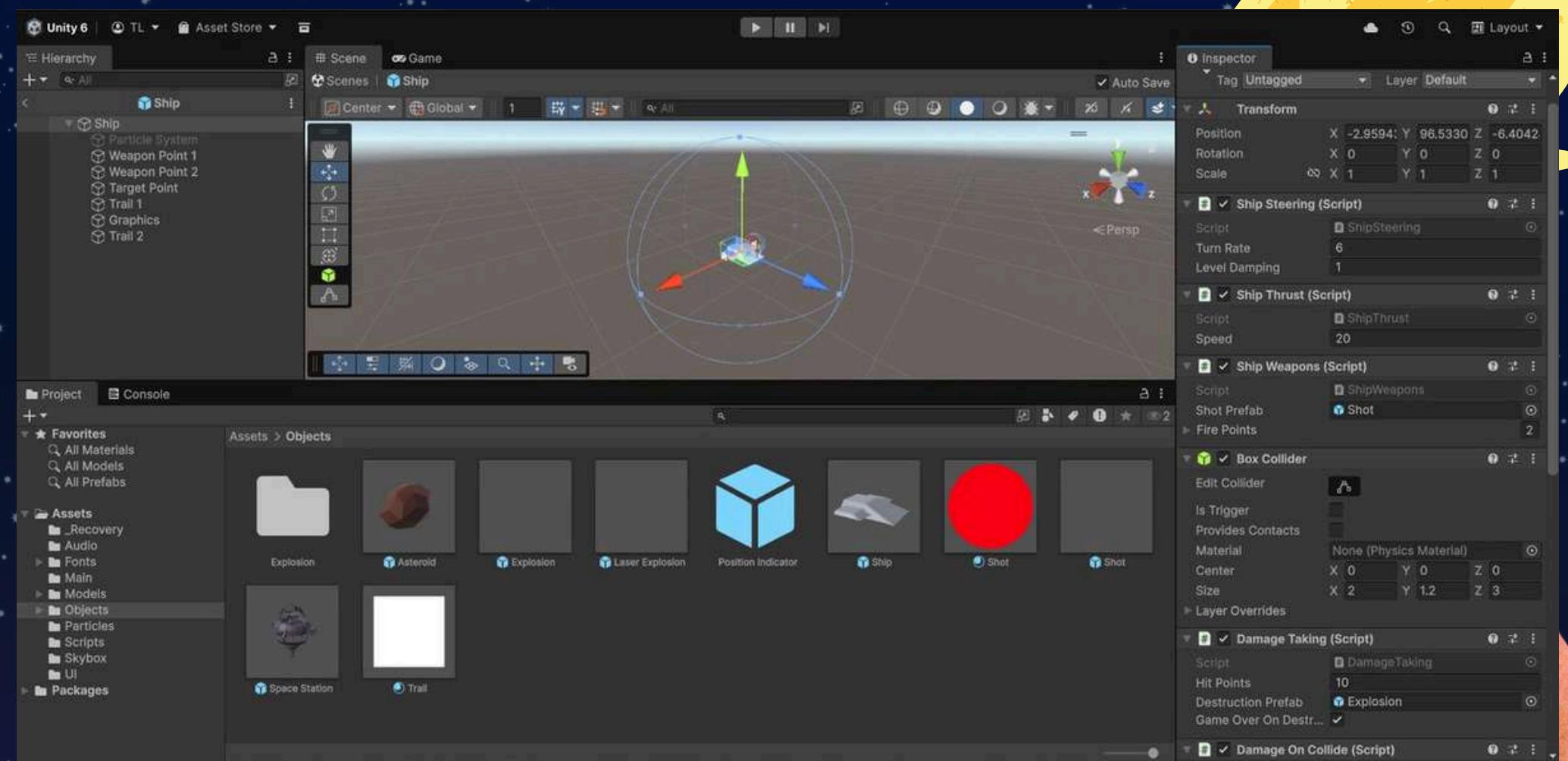
STEP 14

INSTALL SHIP STEERING CONTROL

- SHIPSTEERING.CS SHOULD BE INCLUDED TO SHIP
- CHOOSE A SHIP
- SHIPSTEERING > NEW SCRIPT → ADD COMPONENT
- CHANGE THE CODE IN THE BOOK TO THE NEW ONE.

TEST:

- THE SHIP ROTATES AND FLIES AS YOU PRESS PLAY AND DRAG THE JOYSTICK.
- ALL AROUND.

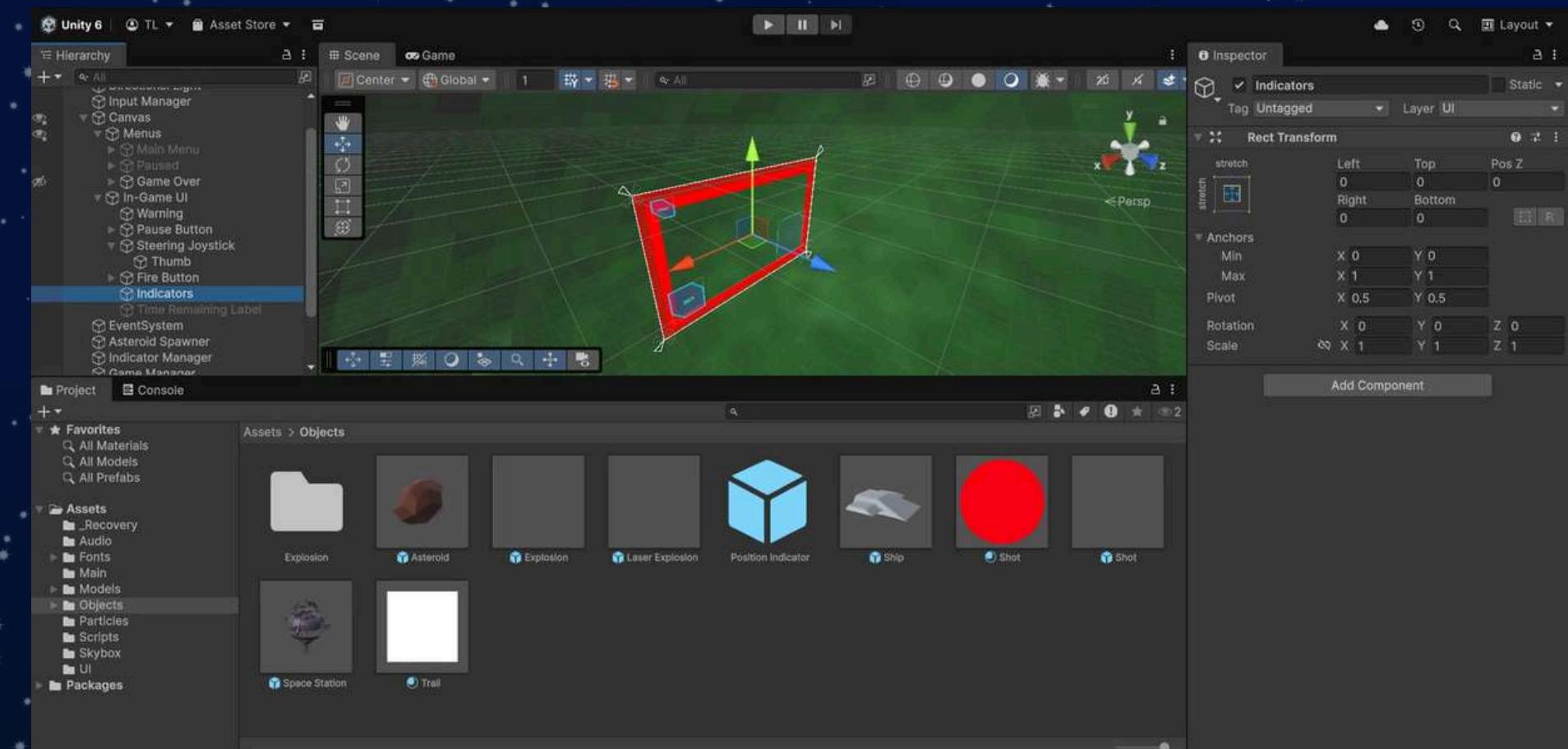


STEP 15

ESTABLISH AN INDICATORS CONTAINER

LATER ON, YOU'LL UTILIZE THIS FOR STATIONS AND ASTEROIDS.

- RIGHT-CLICK CANVAS AND SELECT "CREATE EMPTY."
- PUT THE NAME "INDICATORS"
- ANCHORS: EXTEND BOTH VERTICALLY AND HORIZONTALLY.



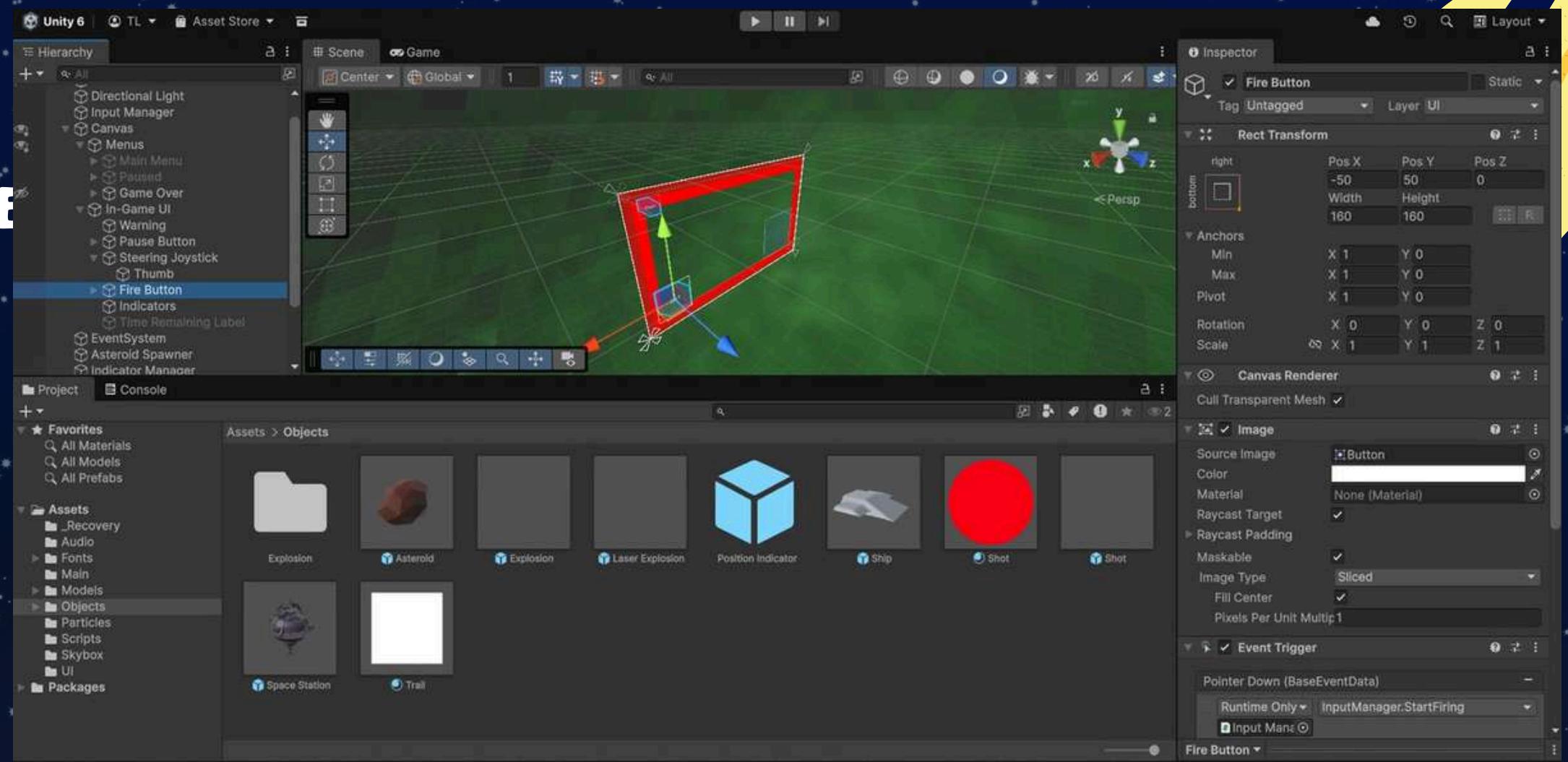
STEP 16

ADD A "FIRE BUTTON" TO THE USER INTERFACE

- CLICK CANVAS IN HIERARCHY.
- RIGHT-CLICK CANVAS → UI → BUTTON.
- CHANGE THE BUTTON'S NAME TO FIREBUTTON
- ESTABLISH ANCHORING
 - ANCHOR → LOWER RIGHT
- ASSIGN A SIZE:
 - 160 IN WIDTH AND 160 ALSO IN HEIGHT
- TAKE IT OUT OF THE CORNER A LITTLE:
 - POS X: -120
 - POS Y: 120
- CHOOSE TEXT (LEGACY) CHILD INSIDE THE BUTTON OBJECT AND REMOVE IT
 - (THE INTEGRATED TEXT IS NOT USED IN THE BOOK).

INCLUDE A BUTTON SPRITE

- CHOOSE FIREBUTTON.
- FIREBUTTON = INSPECTOR → IMAGE → SOURCE IMAGE SPRITE (FROM THE UI FOLDER)



STEP 17

ATTACH FIREBUTTON TO INPUTMANAGER

- IN THE HIERARCHY, CHOOSE FIREBUTTON.
- NAVIGATE TO THE BUTTON ELEMENT.
- CLICK THE + ICON UNDER ONCLICK.

HOWEVER, FIRE EMPLOYS PRESS-AND-HOLD, THUS WE TAKE THIS ACTION:
INCLUDE THE "POINTER DOWN" EVENT COMPONENT.

- SELECT "ADD COMPONENT."
- TYPE: TRIGGER FOR EVENTS
- INCLUDE A POINTER DOWN
- INCLUDE POINTER UP

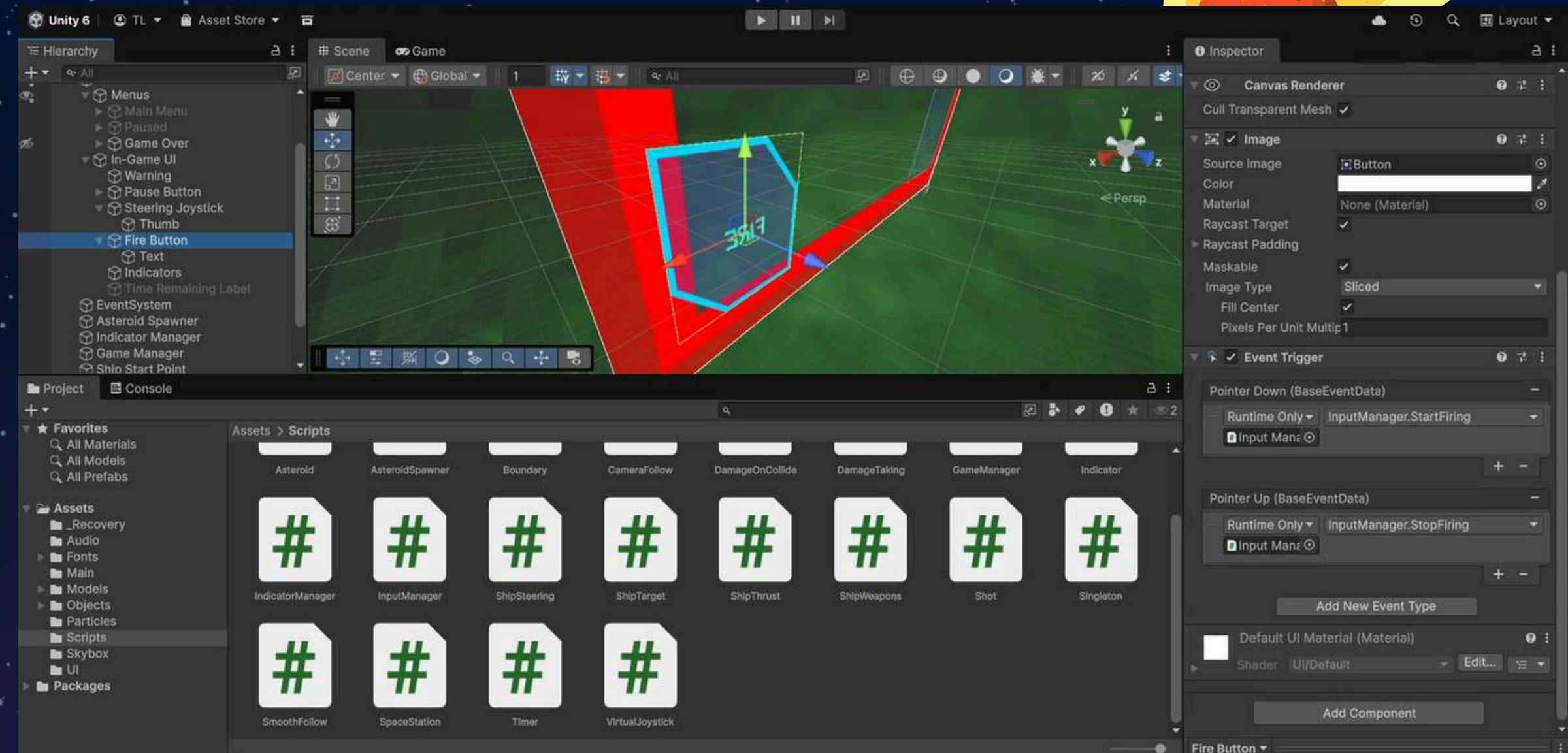
ASSIGN TASKS

POINTER DOWN:

- PRESS +.
- IN THE OBJECT FIELD, DRAG INPUT MANAGER.
- FROM THE DROPODOWN MENU → INPUTMANAGER →
- FIREBUTTONDOWN()

POINTER UP:

- PRESS +.
- DRAG THE INPUT MANAGER
- SELECT → FIREBUTTONUP()



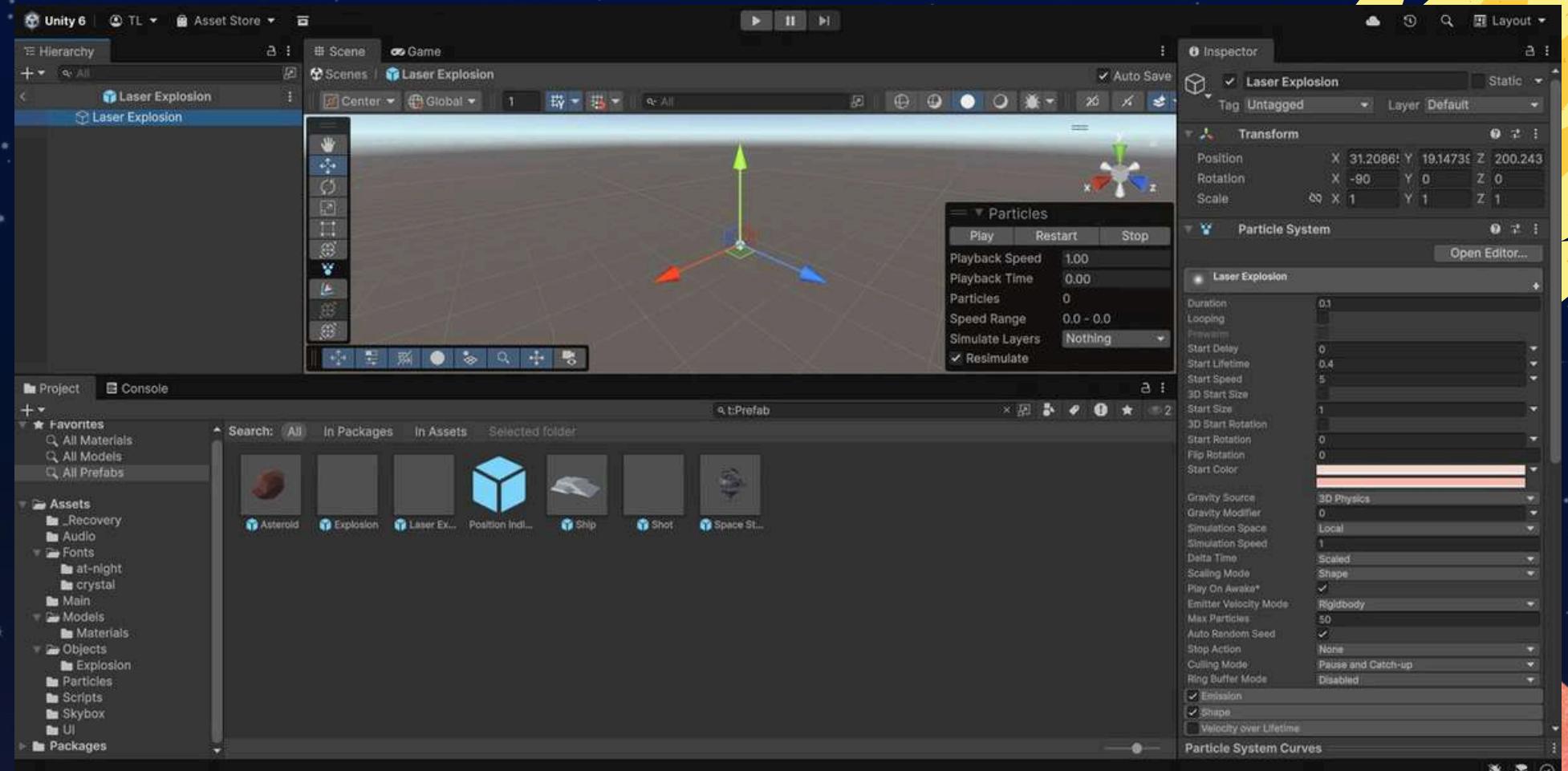
THE FIRE BUTTON NOW STARTS TO FIRE AS LONG AS THE FINGER IS
TOUCHING.

STEP 18

CONSTRUCT THE LASER BULLET PREFAB

- FIRST. MAKE A FRESH, EMPTY ITEM.
 - GAMEOBJECT → EMPTY
 - GIVE IT THE NAME LASER.

- SECOND IS TO RESET THE TRANSFORMATION
 - POSITION ZERO (0,0,0)
 - (0,0,0) ROTATION
 - SCALE (1,1,1)



STEP 19

INCLUDE THE RIGIDBODY AND LASER COLLIDER

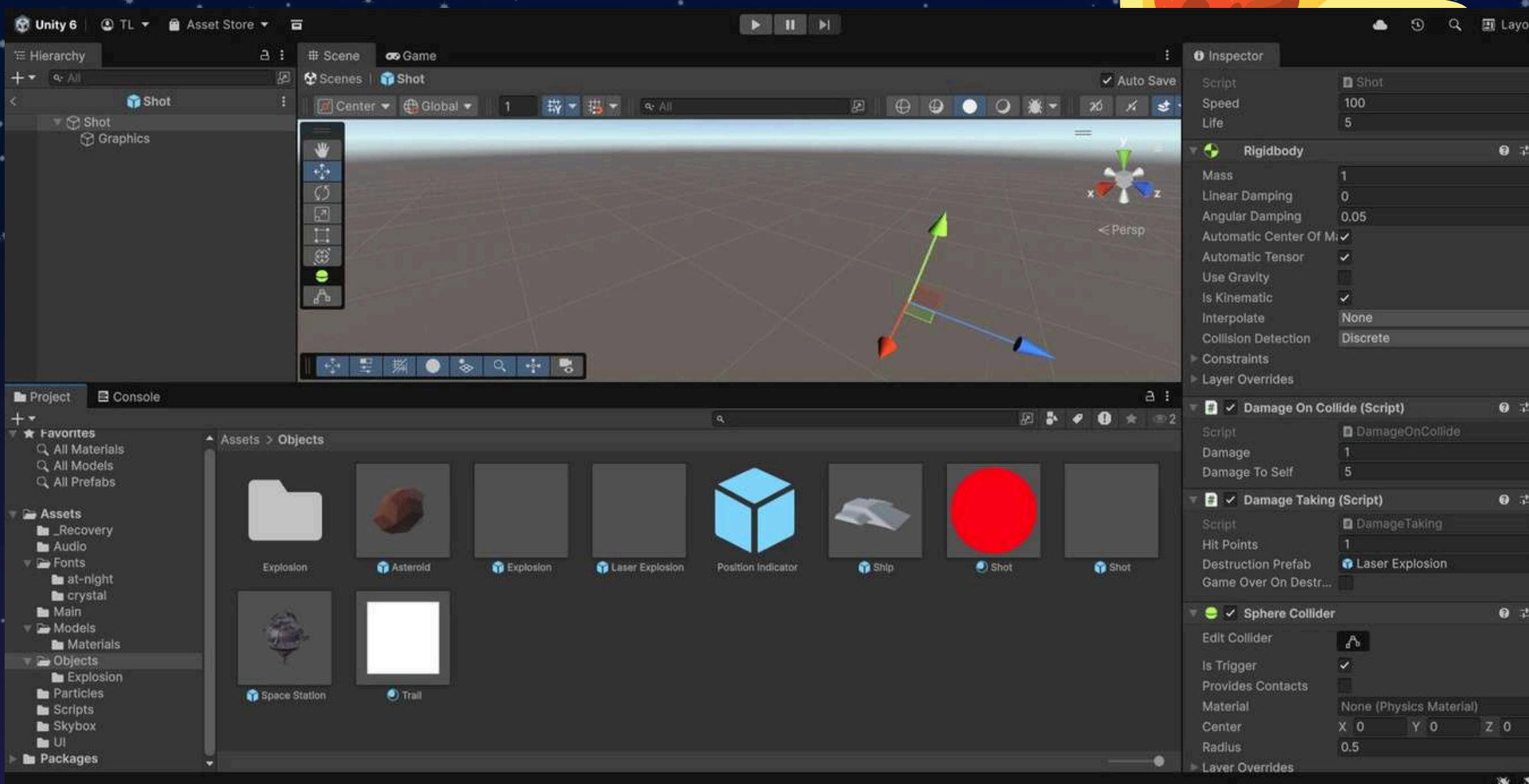
CHOOSE THE PARENT LASER OBJECT:

- SPHERE COLLIDER: ADD COMPONENT
- VERIFY THE TRIGGER
- TO CONCEAL THE LASER, CHANGE THE COLLIDER'S SIZE.

NEXT:

- ADD COMPONENT → RIGIDBODY
- TURN OFF:
 - USE GRAVITY (UNCHECK)
 - IS KINEMATIC (NO)

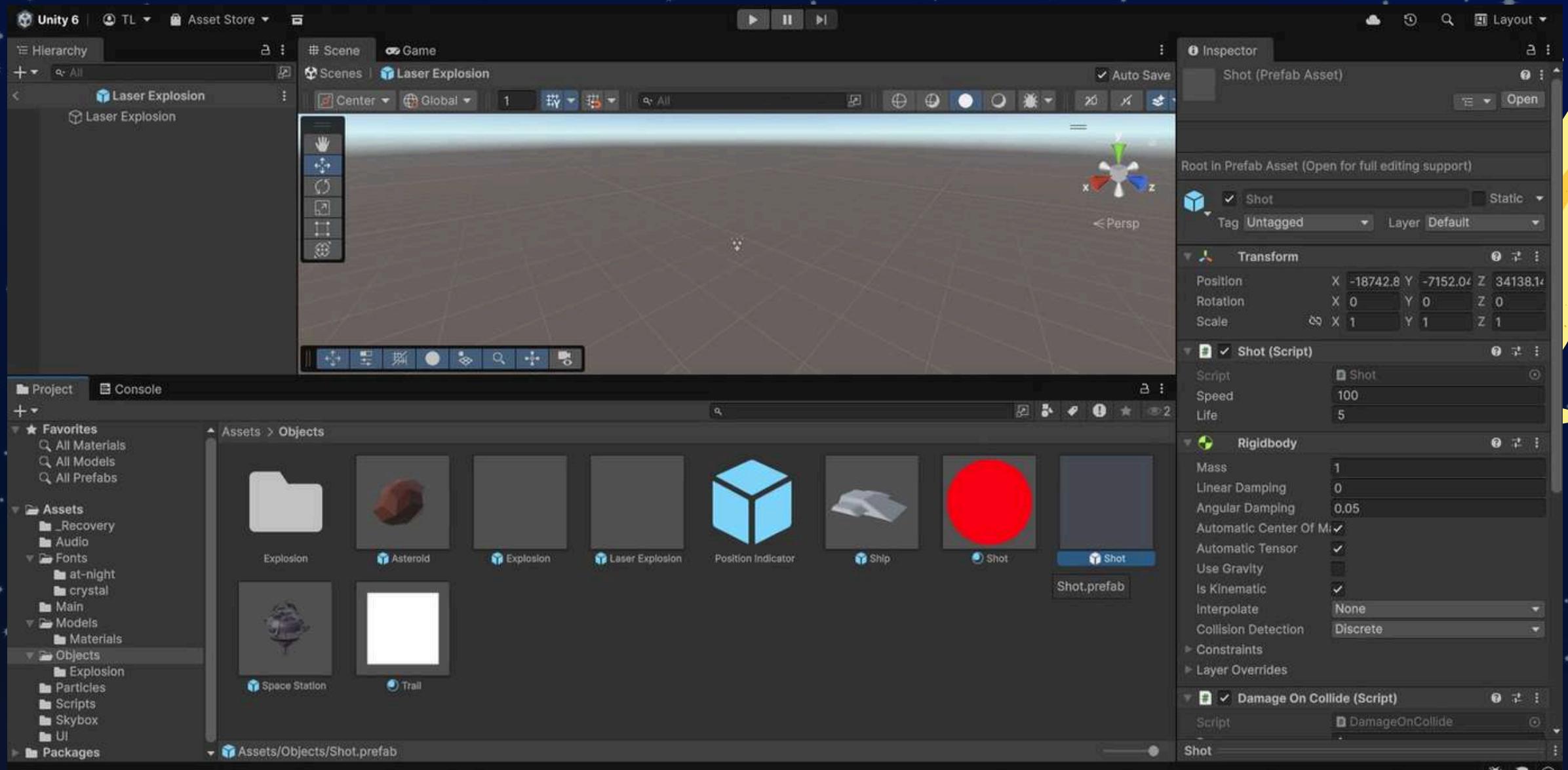
- COLLISION DETECTION = CONTINUOUS DYNAMIC



STEP 20

CONSTRUCT A PREFAB

- FROM HIERARCHY →, DRAG THE SHOT OBJECT INTO FOLDER CALLED PROJECT/PREFABS.
- REMOVE THE SHOT OBJECT FROM THE SCENE OUR SHOT PREFAB IS PREPARED.

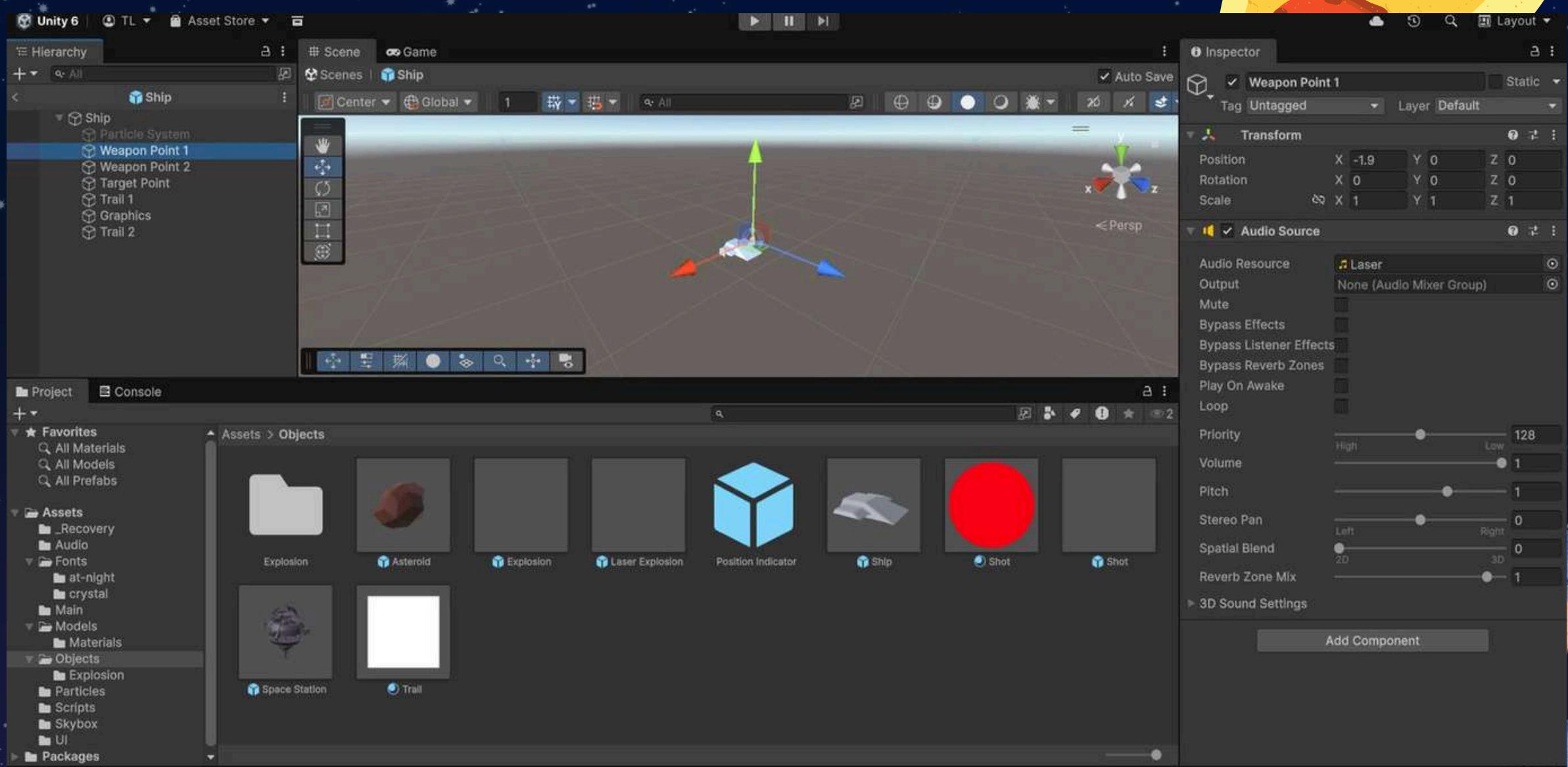


STEP 21

ESTABLISH THE SHIP'S WEAPON SYSTEM

FIRST, ADD "WEAPON POINT 1" AS A CHILD ITEM.

- RIGHT-CLICK SHIP AND SELECT "CREATE EMPTY."
- RENAME: WEAPON POINT 1
- PLACE IT IN FRONT OF THE SHIP'S NOSE.
- FOR INSTANCE:
 - X EQUALS ZERO.
 - Y EQUALS ZERO.
 - Z IS BETWEEN 1.5 AND 2.



(THIS ESTABLISHES THE LOCATION OF LASER SPAWNS.)

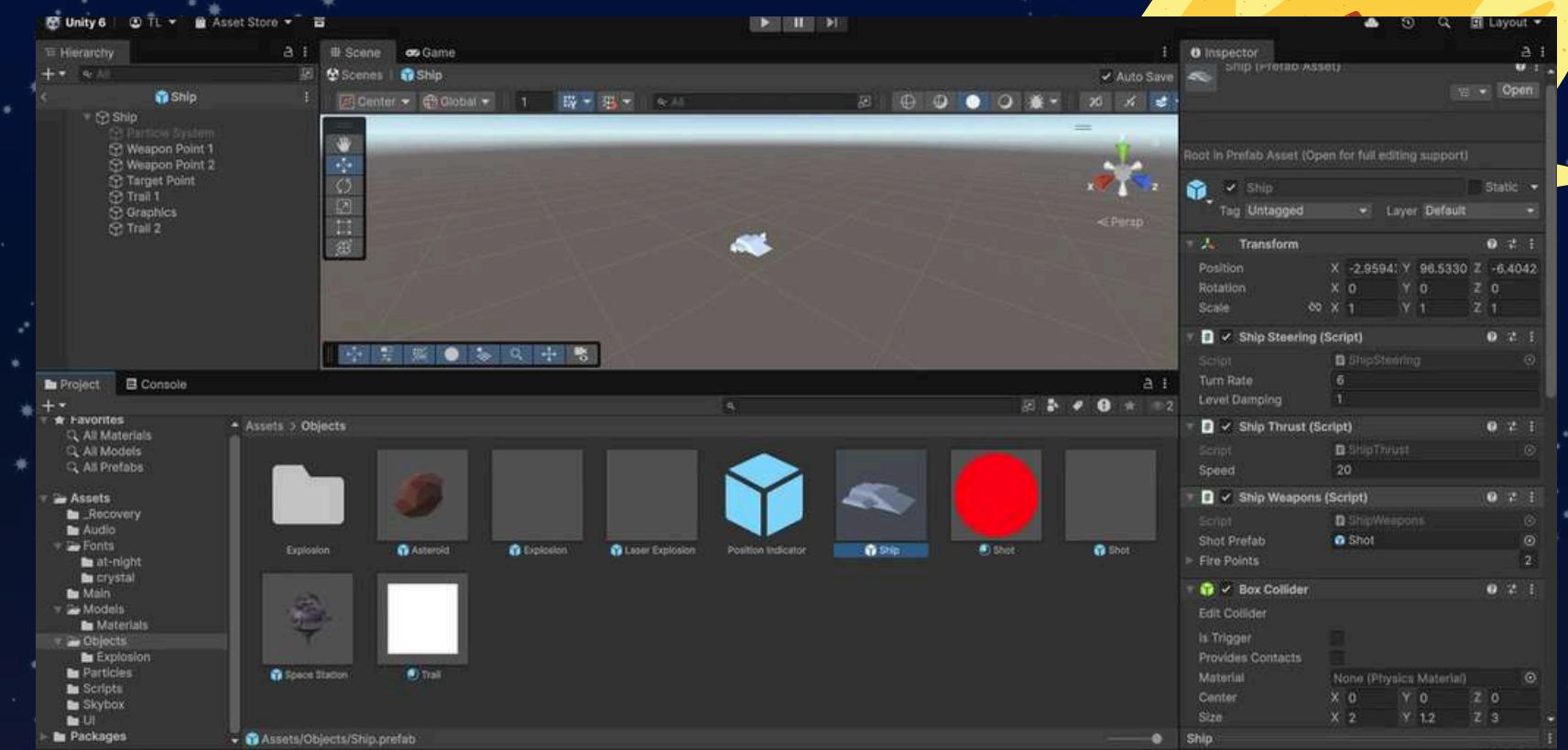
STEP 22

INCLUDE THE SHIPWEAPONS SCRIPT IN THE SHIP

INCLUDE A SCRIPT:

- CHOOSE A SHIP
- ADD COMPONENT → NEW SCRIPT → SHIPWEAPONS

CHANGE THE CODE TO THE ONE FOUND IN THE BOOK.



STEP 23

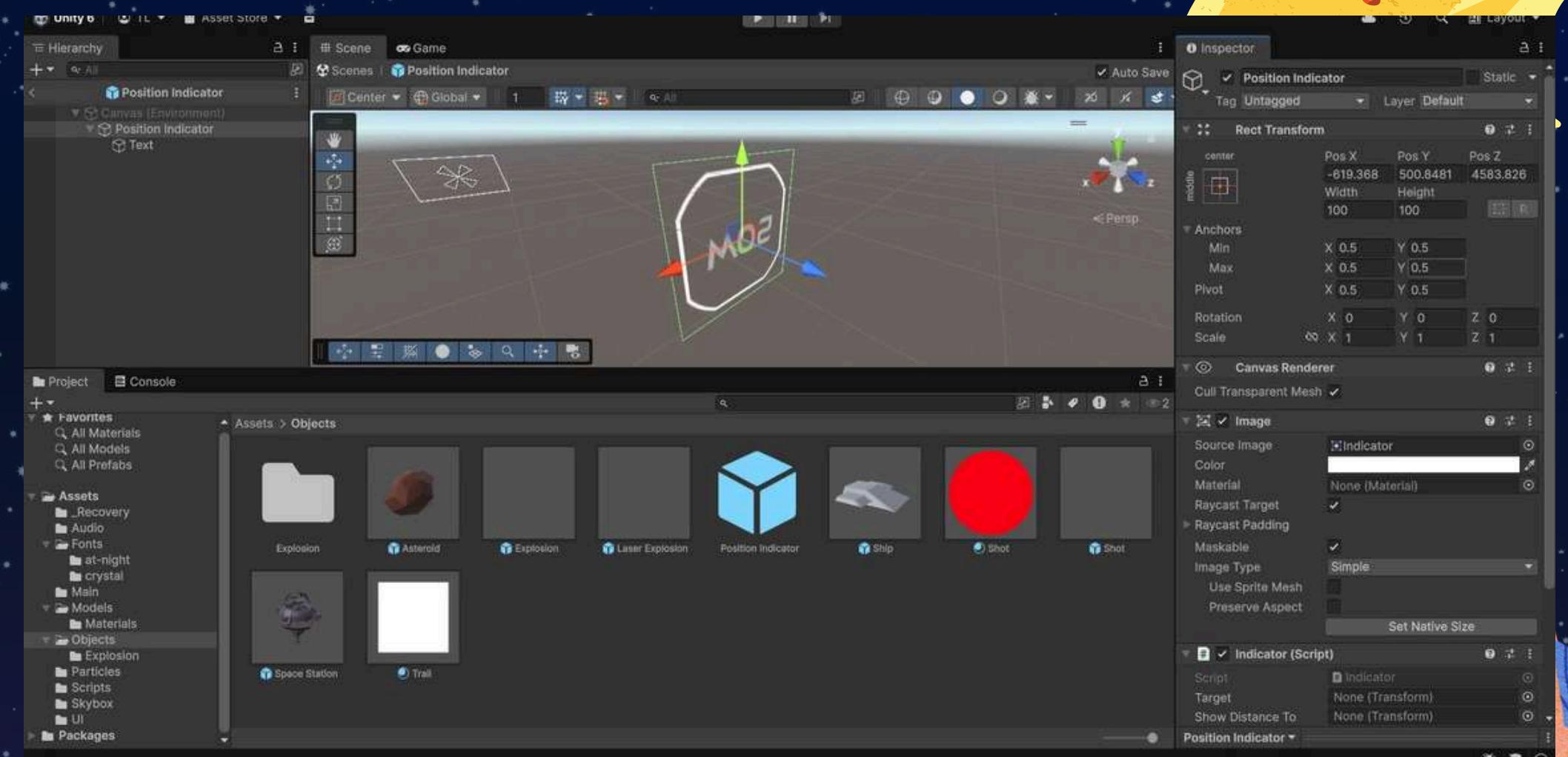
INCLUDE A POSITION INDICATOR

FIRST IS TO MAKE A NEW UI IMAGE

- CANVAS → RIGHT-CLICK → UI → IMAGE
- NAMED AS "INDICATOR"

SECOND IS TO CONFIGURE PROPERTIES

- CENTER = ANCHOR
- POS X = 0
- POS Y = 0
- WIDTH: 200
- HEIGHT: 200
- SOURCE IMAGE = INDICATOR (FOUND IN THE UI FOLDER)



STEP 24

CONSTRUCT THE ASTEROID PREFAB

THERE ARE SEVERAL MODELS OF ASTEROIDS IN UNITY'S PDF ASSETS.

MAKE A BLANK OBJECT

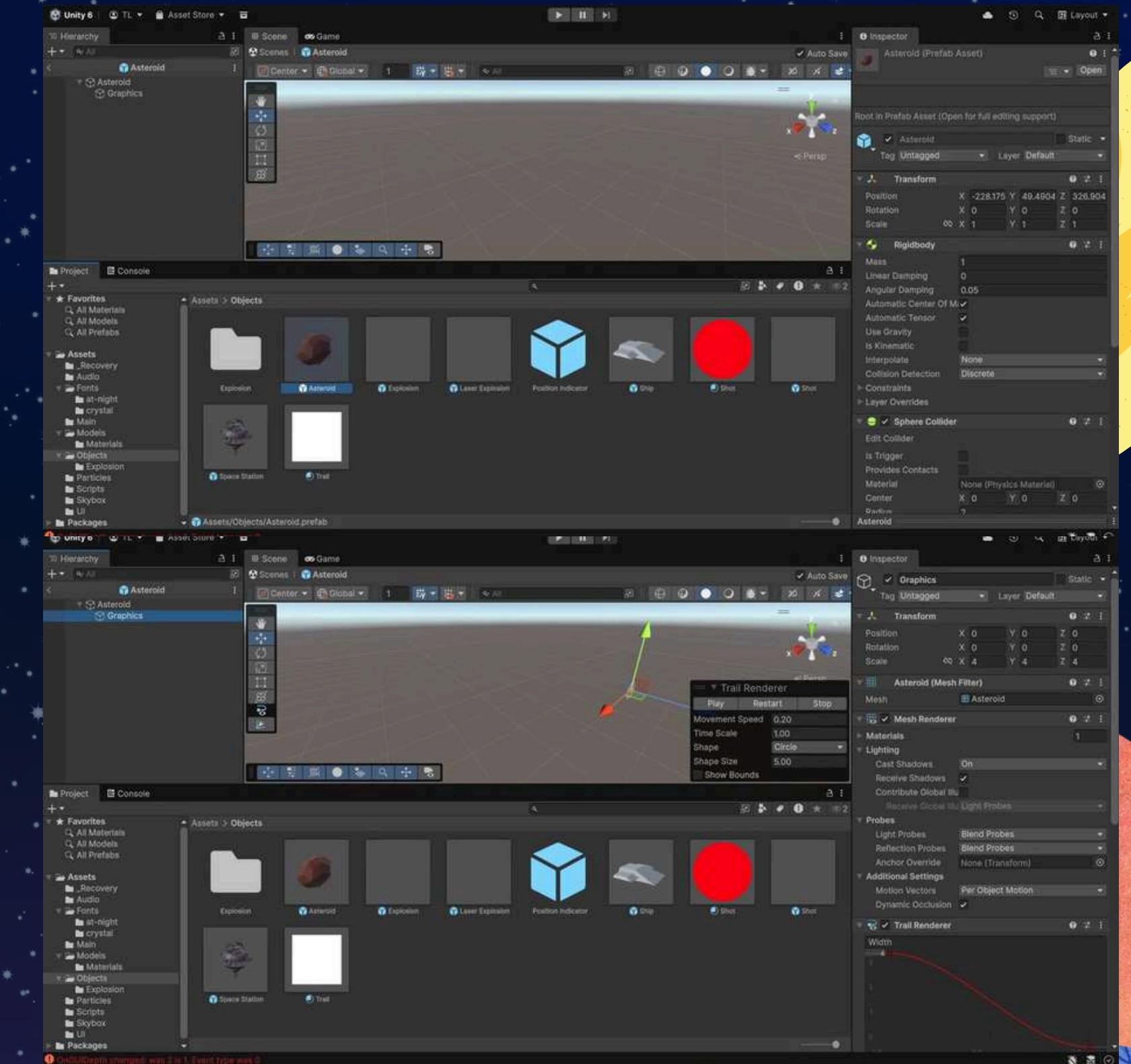
- GAMEOBJECT → EMPTY
- RENAME: ASTEROID

INCLUDE ASTEROID GRAPHICS

- VISIT MODELS → ASTEROIDS
- DRAG ANY OR ASTEROID1 ONTO THE ASTEROID OBJECT
- CHANGE THE CHILD NAME TO GRAPHICS

RESET THE GRAPHICS TRANSFORMATION

- CHOOSE GRAPHICS → GEAR ICON → RESET



STEP 25

ADD THE RIGIDBODY AND COLLIDER

INCLUDE A SPHERE COLLIDER

- CHOOSE AN ASTEROID
- ADD COMPONENT → SPHERE COLLIDER
- RADIUS = 2
- IS TRIGGER (UNCHECK)
- (PHYSICAL IMPACT IS WHAT WE SEEK)

INCLUDE A RIGIDBODY

- ADD COMPONENT → RIGIDBODY
- SWITCH OFF:
- USE GRAVITY ✗

- LEAVE IS KINEMATIC = FALSE



STEP 26

MAKE AN EXPLOSION PREFAB

AN EXPLODING PARTICLE SYSTEM IS PART OF YOUR ASSET PACK.

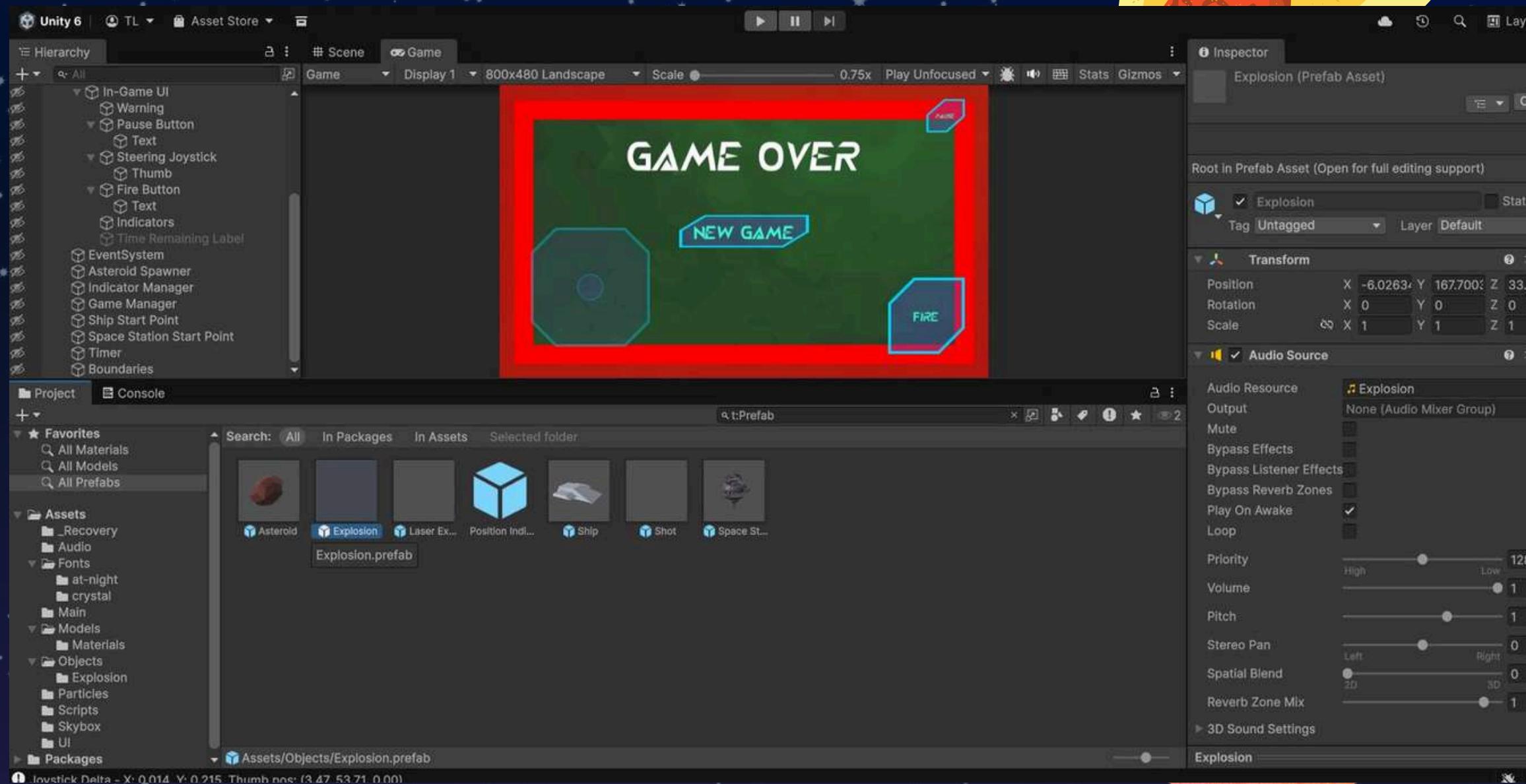
INCLUDE AN EXPLOSION IN THE SCENARIO

- OPEN THE PREFABS FOLDER.
- LOCATE AN EXPLOSION PREFAB
- ADD IT TO THE SCENE.
- IT'S OKAY IF IT PLAYS AUTOMATICALLY IN THE EDITOR.

CONVERT TO A VARIATION PREFAB

- FROM SCENE →, DRAG EXPLOSION INTO THE PREFABS FOLDER.
- REMOVE THE EXPLOSION FROM THE SCENE.
- RENAME PREFAB AS "ASTEROIDEXPLOSION"

THIS WILL ALSO BE USEFUL FOR LASER HIT EFFECTS.



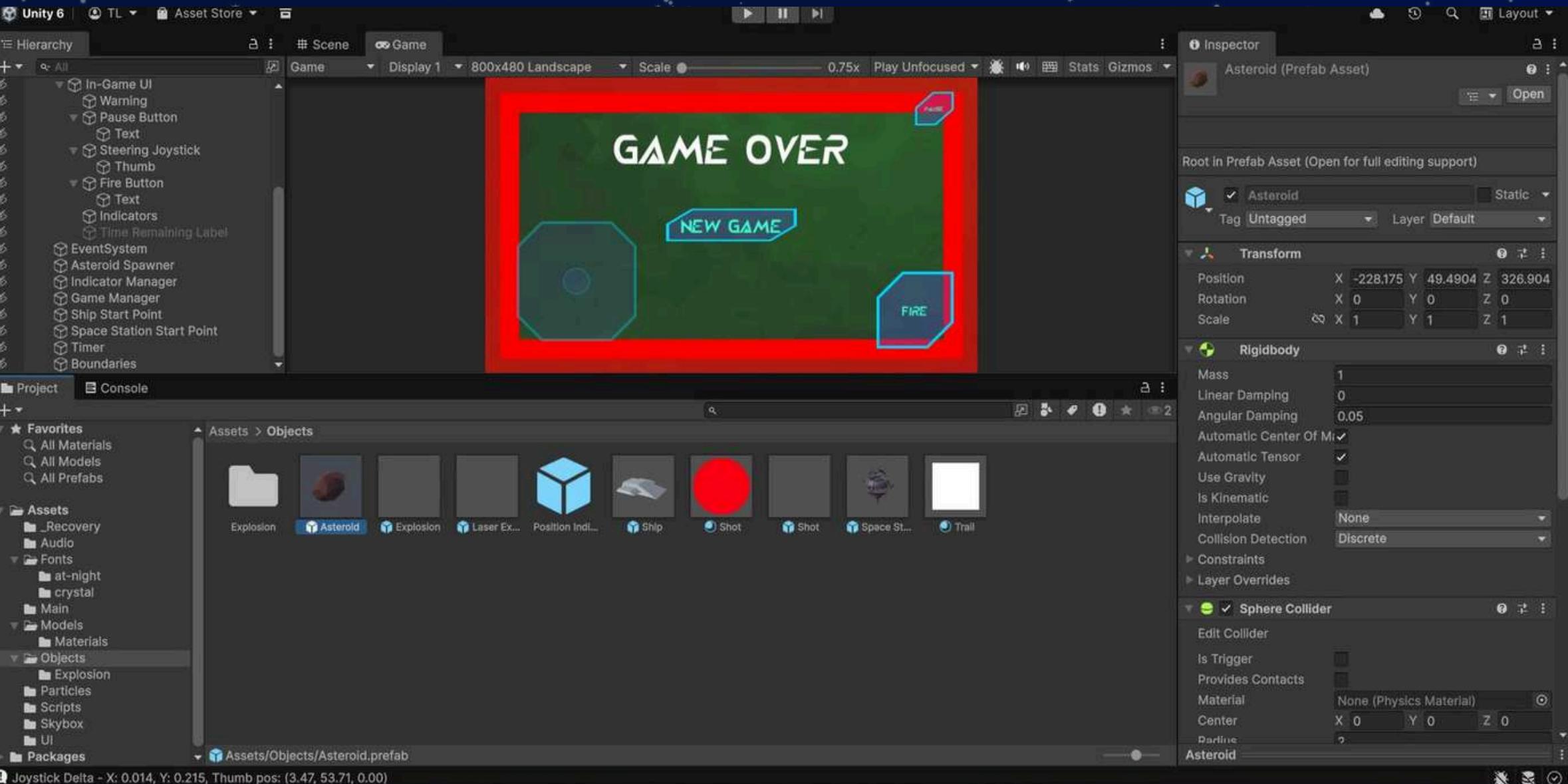
STEP 27

CONSTRUCT A PREFAB



- DRAG THE ASTEROID OBJECT → INTO THE PREFABS FOLDER.
- REMOVE THE ASTEROID FROM THE SCENE.

YOU NOW POSSESS A PRISTINE ASTEROID PREFAB.



STEP 28

ASTEROID SPAWNER

YOU NEED RANDOM ASTEROIDS APPEARING IN FRONT OF THE SPACECRAFT.

MAKE A BLANK OBJECT

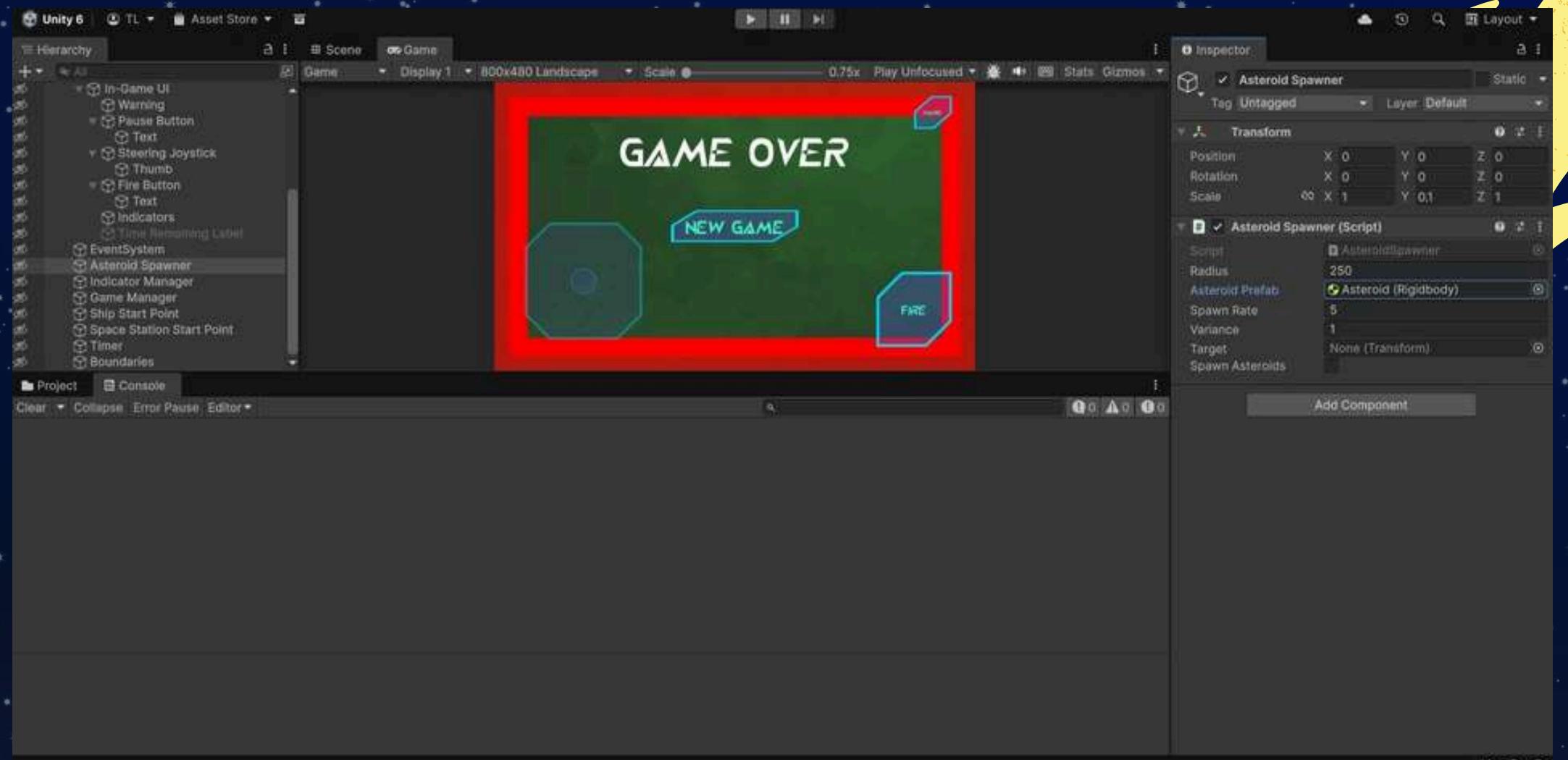
- GAMEOBJECT → EMPTY
- NAME: ASTEROIDSPAWNER

WRITE THE SCRIPT FOR SPAWNER

ADD COMPONENT → NEW SCRIPT → ASTEROIDSPAWNER
CHANGE THE CODE TO THE ONE FOUND IN THE BOOK.

ASSIGN THE PREFAB

- CHOOSE ASTEROIDSPAWNER.
- DRAG THE ASTEROID PREFAB INTO THE DESIGNATED SLOT TO ASSIGN IT.



STEP 29

ESTABLISH THE GAME MANAGER

THIS IS THE GAME'S BOSS, IT MANAGES:

- LAUNCHING THE GAME
- END (GAME OVER)
- RESTARTING
- SPAWNING ITEMS
- RESETS
- UI FLOW (MENUS)

MAKE A BRAND-NEW, BLANK GAMEOBJECT

- HIERARCHY → EMPTY
- RENAME: GAMEMANAGER
- TRANSFORM RESET:
 - POSITION: 0,0,0
 - ROTATION: 0,0,0
 - SCALE: 1,1,1

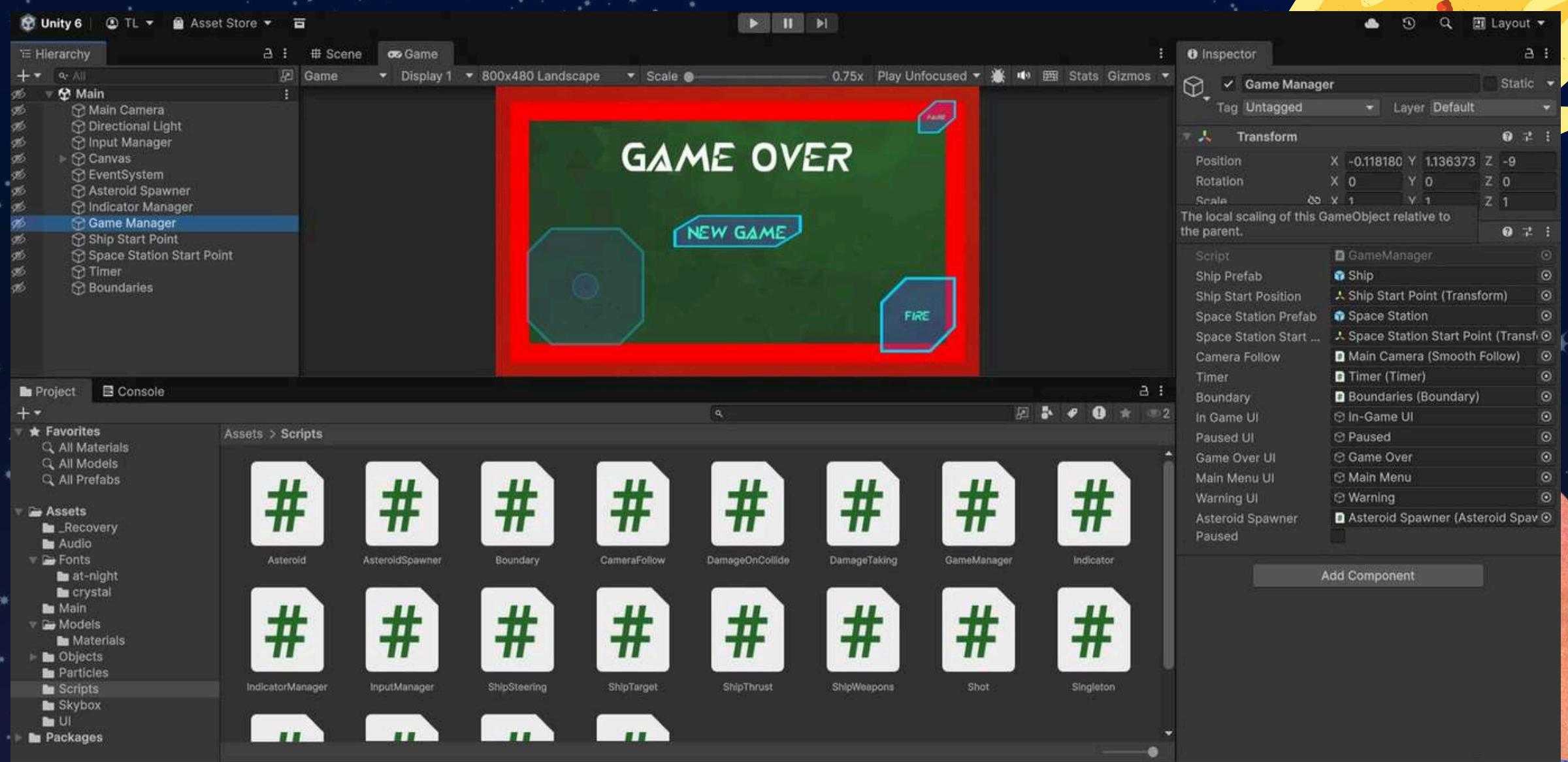
INCLUDE THE GAMEMANAGER SCRIPT

- CHOOSE GAMEMANAGER.
- ADD COMPONENT > NEW SCRIPT → GAMEMANAGER

USE THE CODE FOUND IN THE BOOK INSTEAD OF ALL CODE

GIVE REFERENCES

- IN INSPECTOR, CHOOSE GAMEMANAGER.
- SHIP → DRAG THE SHIP ITEM.



STEP 30

CREATE THE MAIN MENU USER INTERFACE

CONSTRUCT THE MAIN MENU PANEL

- RIGHT-CLICK CANVAS → UI → PANEL.
- RENAME: MENU
- ANCHOR: STRETCH (FULL SCREEN)

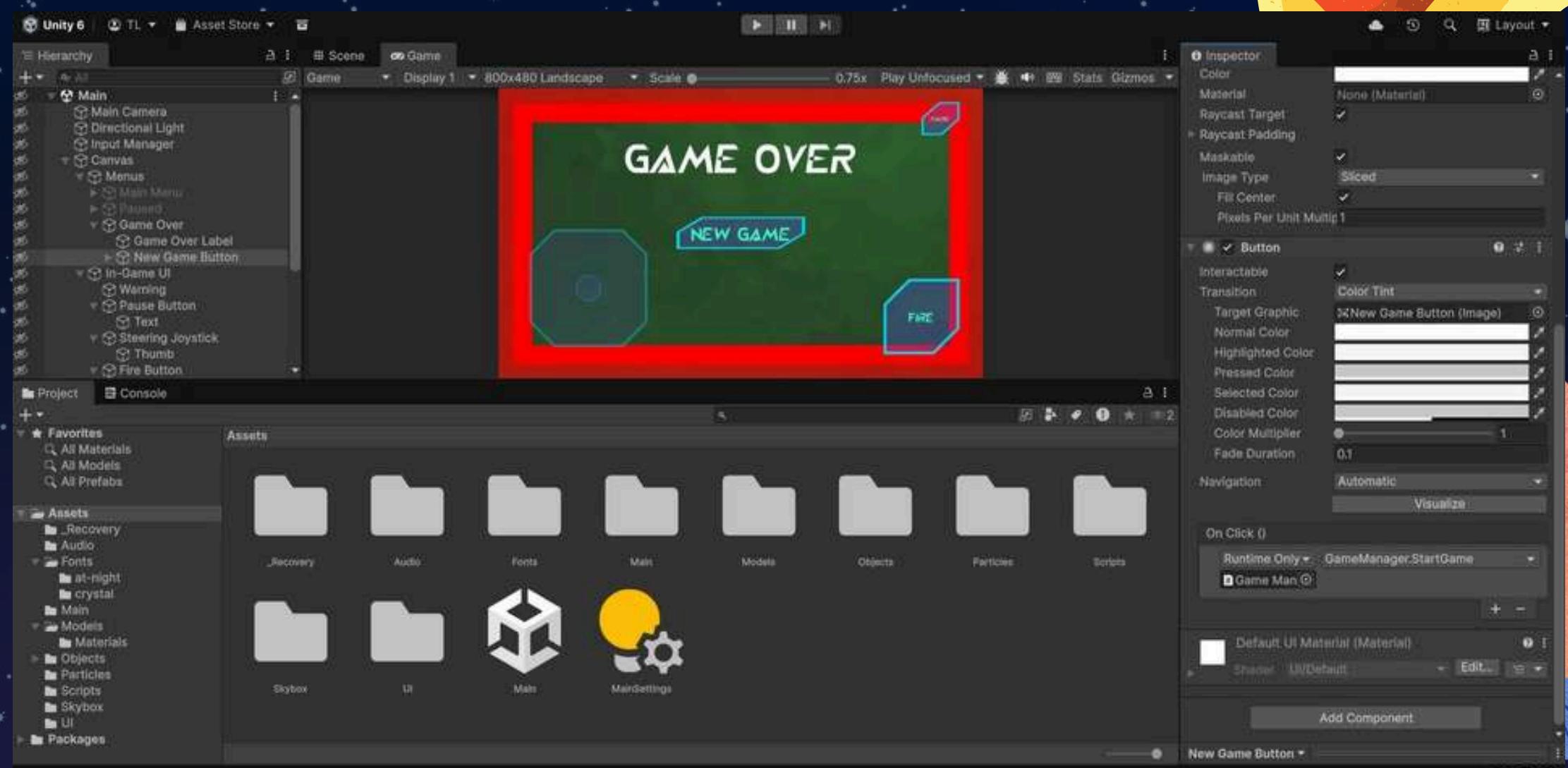
MAKE A START BUTTON

- RIGHT-CLICK MENU → UI → BUTTON.
- RENAME: BUTTON FOR THE NEW GAME
- ADJUST THE SIZE TO YOUR PREFERENCE.
- CENTER ALIGNMENT
-

LINK GAMEMANAGER TO THE NEW GAME

BUTTON

- CLICK THE "NEW GAME" BUTTON.
- SCROLL DOWN →BUTTON →ONCLICK()
- PRESS +.
- PLACE THE GAMEMANAGER OBJECT IN THE DESIGNATED SLOT.
- IN THE FUNCTION DROPODOWN:
-GAMEMANAGER → STARTGAME()



STEP 31

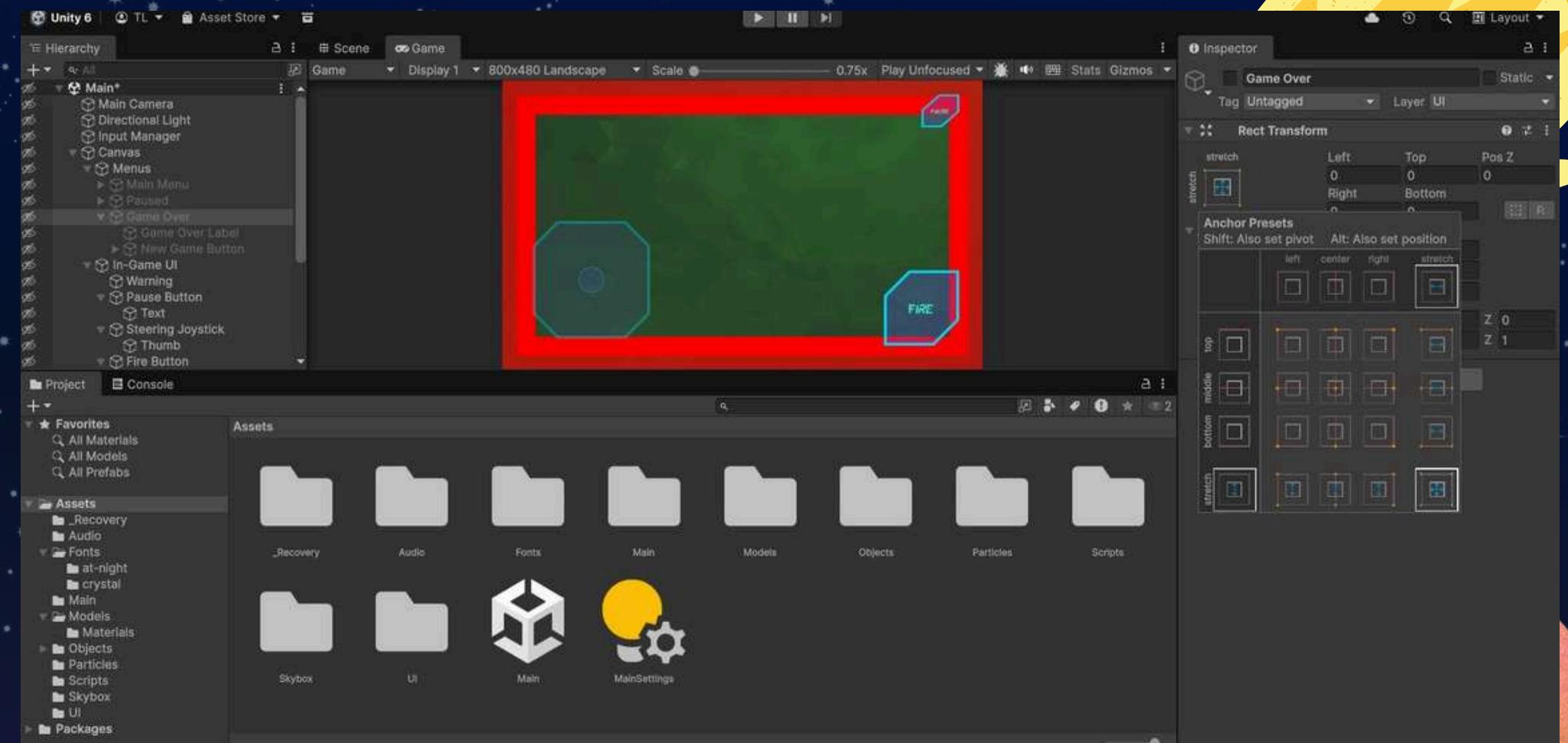
CREATE THE UI FOR "GAME OVER"

MAKE A PANEL FOR THE GAME OVER

- CANVAS → RIGHT-CLICK → UI → PANEL
- "GAMEOVER" FOR THE NAME.
- ANCHOR: STRECH

INCLUDE THE PHRASE "GAME OVER."

- RIGHT-CLICK GAMEOVERUI > UI → TEXT
- TEXT: GAME OVER

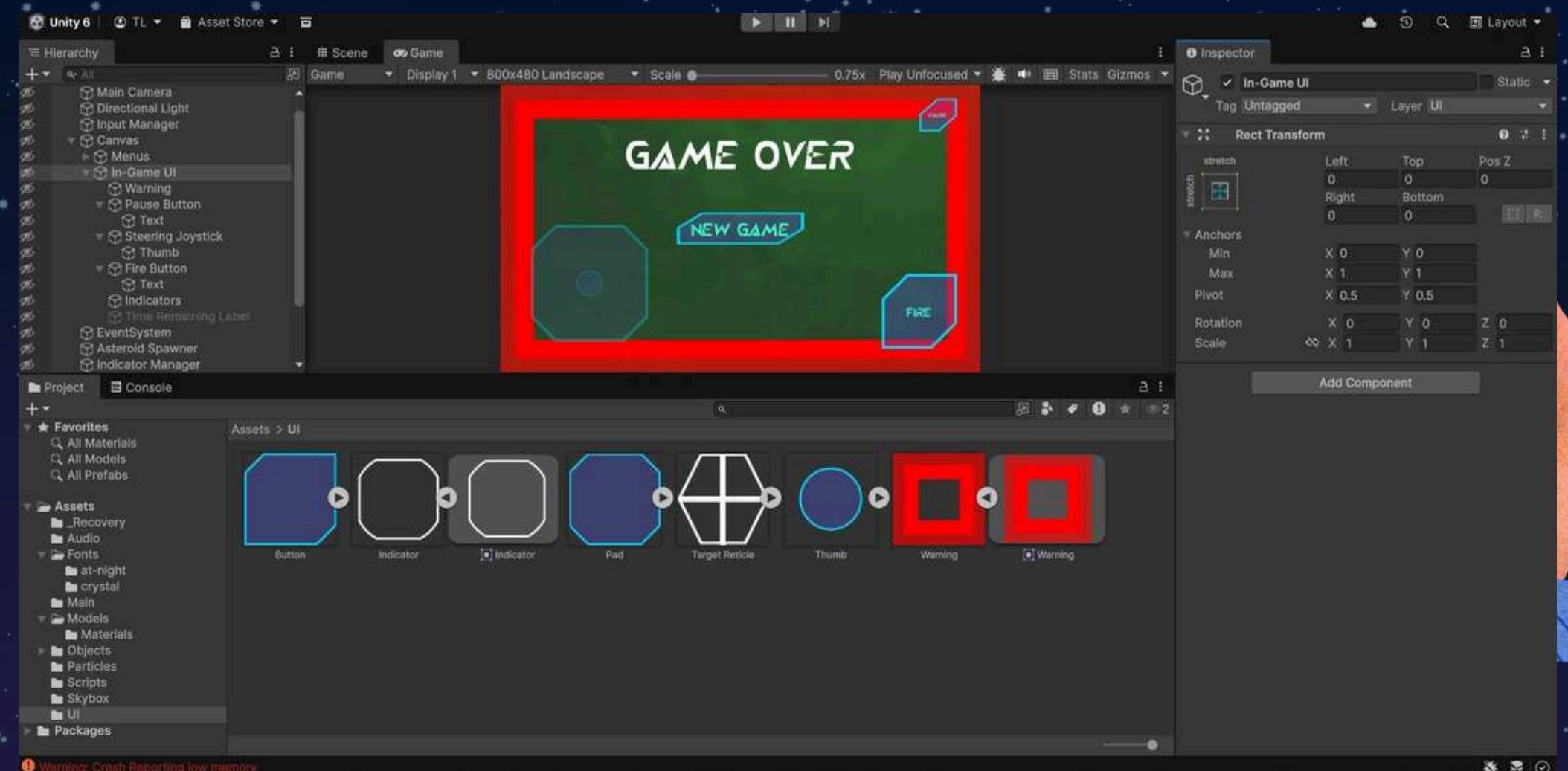


STEP 32

CREATE THE UI FOR IN-GAME

THIS IS THE STANDARD HUD THAT YOU SEE WHEN
PLAYING A GAME.

- CANVAS > CREATE EMPTY → RENAME INGAME
- ANCHOR = STRETCH
- ADD THE FOLLOWING CHILDREN

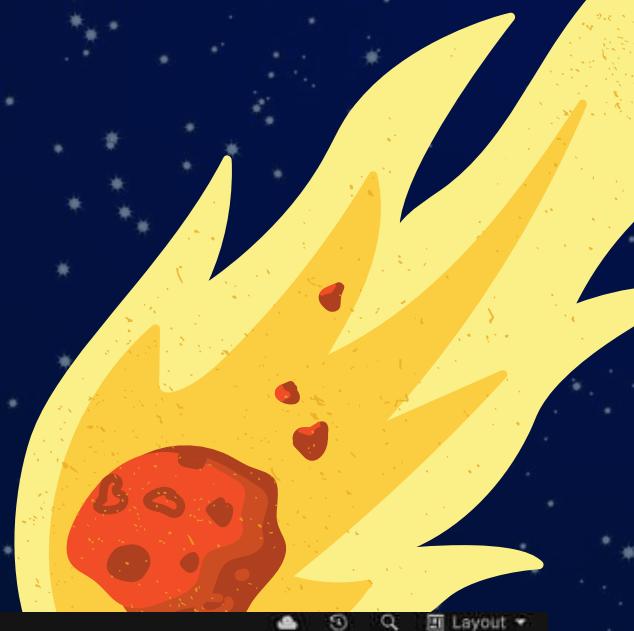
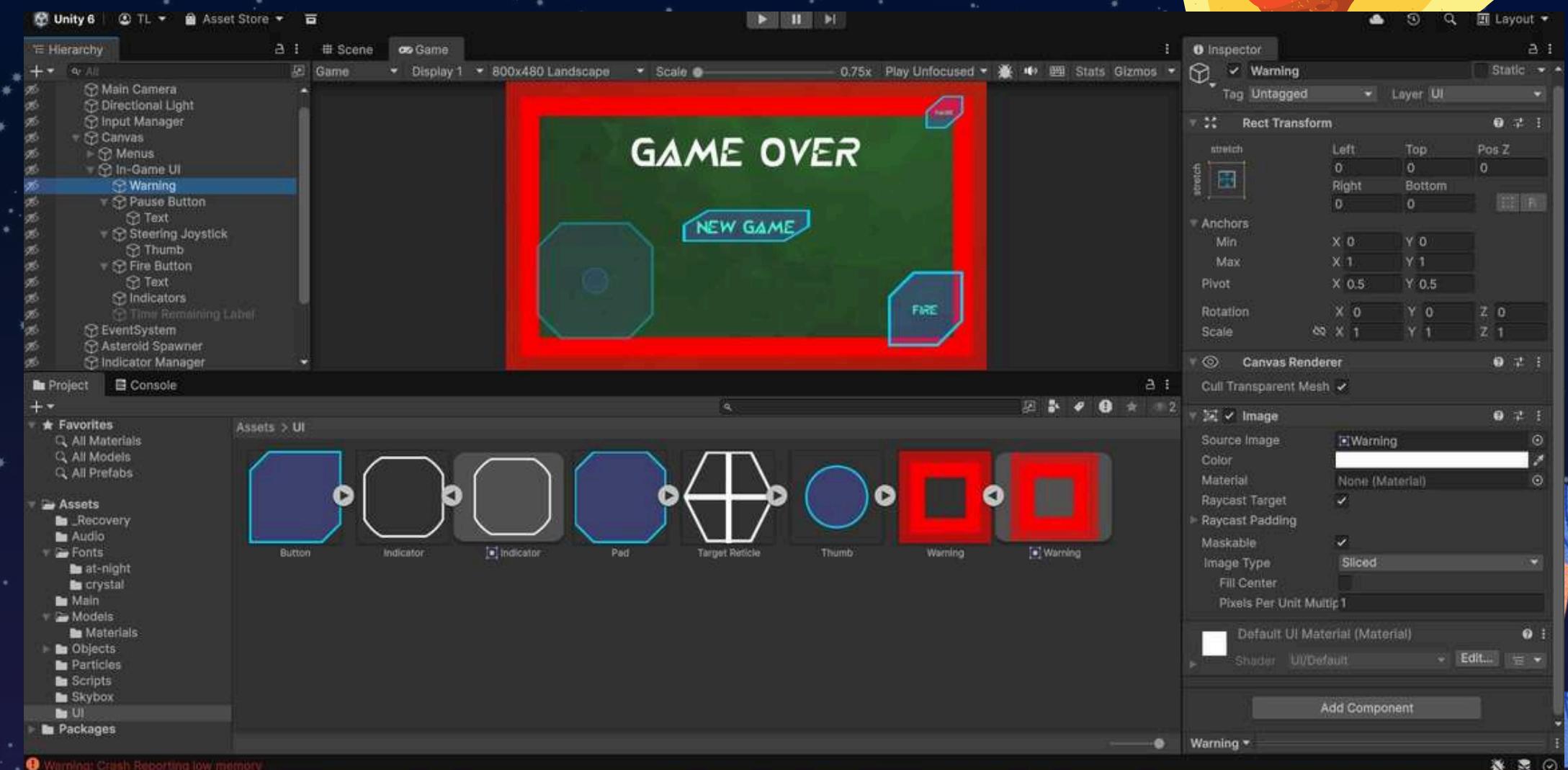


STEP 33

OUT-OF-BOUNDS WARNING USER INTERFACE

MAKE A WARNING TEXT

- RIGHT-CLICK INGAMEUI → UI → IMAGE
- PLACE THE WARNING SPRITE THERE.



STEP 34

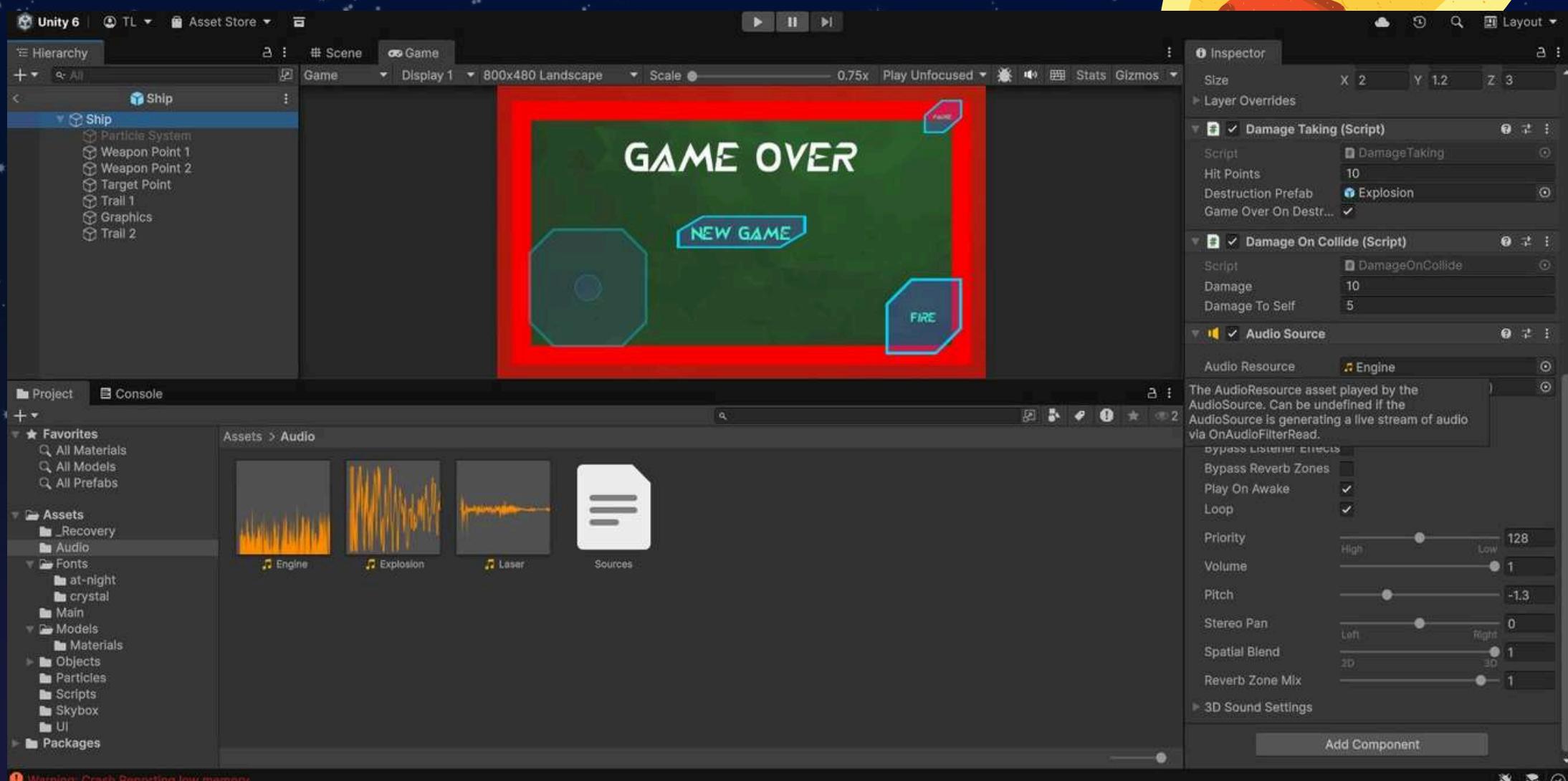
INCLUDE THE SHIPWEAPONS SCRIPT IN THE SHIP

BACKGROUND MUSIC

- CLICK THE SHIP ITEM.
- ADD COMPONENT → AUDIO SOURCE
- DRAG ENGINE_MUSIC.MP3 FROM AUDIO FOLDER

SOUNDS OF EXPLOSIONS

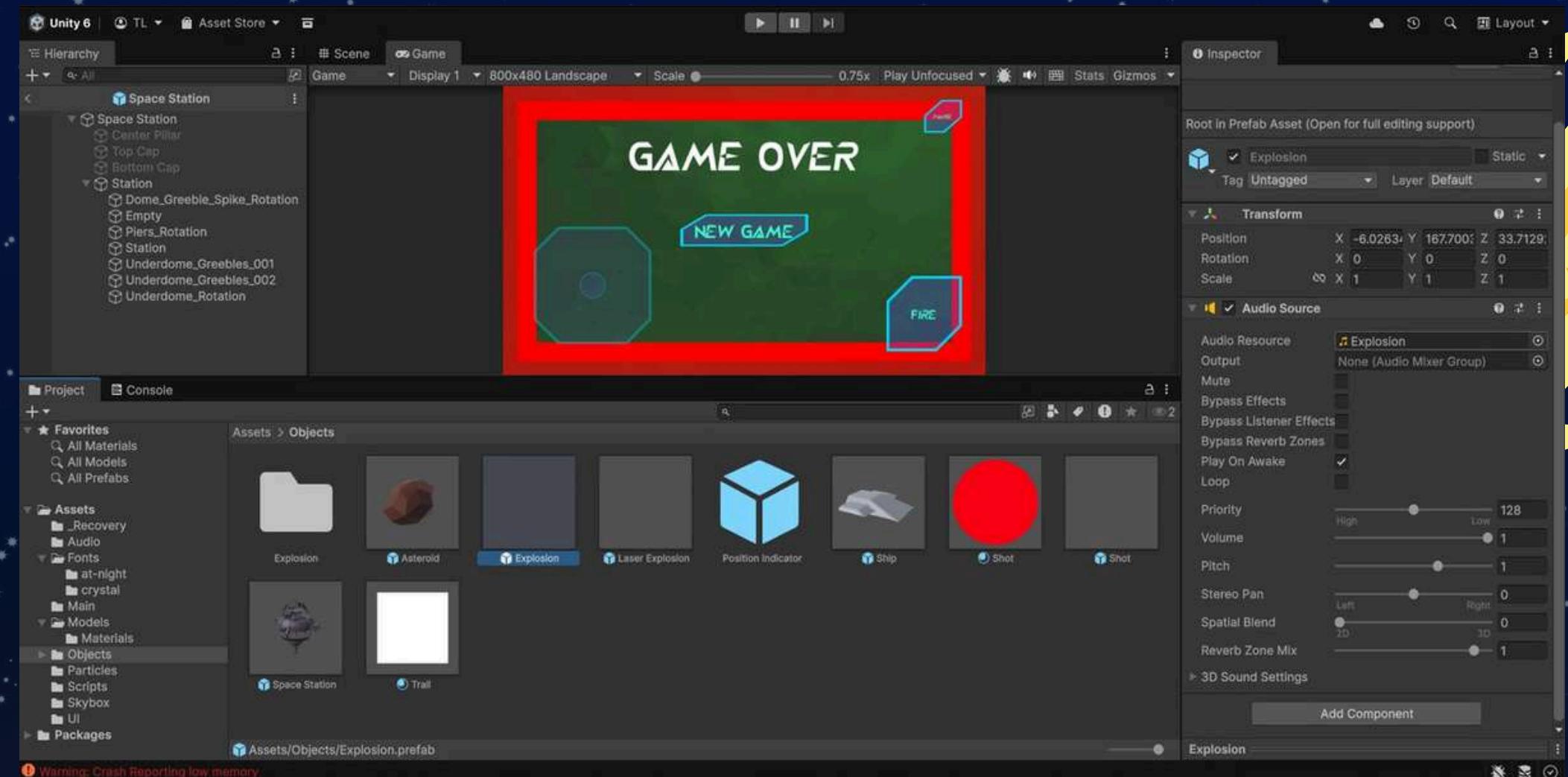
- CHOOSE THE ASTEROIDEXPLOSION PREFAB.
- ADD COMPONENT → AUDIO SOURCE
- ASSIGN EXPLOSION.WAV.
- UNCHECK "PLAY ON AWAKE."
- VISIT THE PARTICLE SYSTEM:
 - INCLUDE STOP ACTION: DESTROY
 - (THIS ELIMINATES THE EXPLOSION ONCE THE SOUND HAS ENDED.)



STEP 35

ADD TRAIL TO THE SHIP

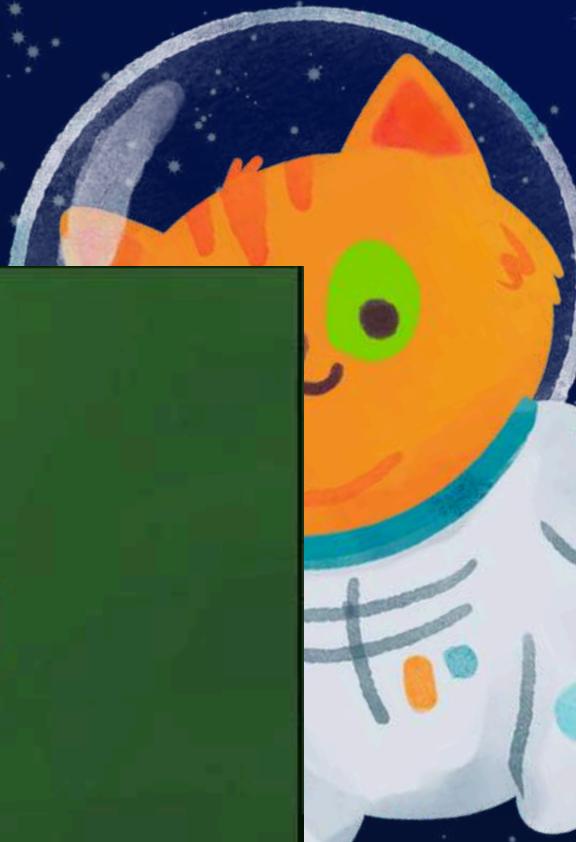
- CHOOSE SHIP → GRAPHICS.
- ADD COMPONENT → TRAIL RENDERER
- CONFIGURE:
 - TIME: 1
 - START WIDTH: 0.3
 - END WIDTH: 0
 - MATERIAL: USE A GLOWING-ADDITIVE MATERIAL FROM EFFECTS FOLDER



STEP 36

THERE YOU GO!

RUN THE GAME AND ENJOY



THANK YOU

