Welcome to

UNITE

TRAINING DAY
INTRODUCTIONS
INTRODUCTIONS

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WHAT YOU WILL BUILD

TANKS!
WHAT’S A TRAINING DAY?! 

Building a game in 8 phases.

01 - PROJECT & SCENE SETUP
02 - TANK CREATION & CONTROLS
03 - CAMERA
04 - HEALTH
05 - SHELLS
06 - SHOOTING
07 - GAME MANAGERS
08 - AUDIO
OKAY.
LET’S DO THIS.
1. **Install** Unity version 5.2 or greater
2. **Download** the project from the asset store, just search for Tanks tutorial
3. **Import** the files from the Asset store package
1. Use **Two by Three** layout using the **Layout** drop-down in the upper right
2. Drag the **Project** window below the **Hierarchy**
3. Set **Project** window zoom to minimum
1. Make sure you have the correct project open and you are in an empty scene, if not, go to File > New Scene

2. Save the empty scene to the Scenes folder and call it Main
1. **Delete** the **Directional Light** from the scene

2. **Drag** the **Level Art** prefab from the **Project** panel **Prefabs** folder into the **Hierarchy** panel

3. From the **Window** menu, **open** the **Lighting Panel** and dock it with the **Inspector**
1. At the bottom of the panel **uncheck** *Auto*
2. Moving up, **uncheck** *Baked GI*
3. Set *Realtime Resolution* to 0.5
4. Change *Ambient Source* from *Skybox* to *Color*
5. Set the *Ambient Color* to (72, 62, 113)
6. Click **Build** on the *Lighting* panel
1. Return to the **Inspector** panel
2. Change the **Position** of the **Main Camera** to 
   \((-43, 42, -25)\)
3. Change its **Rotation** to \(40, 60, 0\)
4. On the **Camera** component change the **Projection** to **Orthographic**
1. Change **Clear Flags** from **Skybox** to **Solid Color**

2. Change the **Background** color to *(80, 60, 50)*

3. **Save your scene!**
What colour represents the X axis?

a) Blue     b) Red     c) Yellow     d) Green

In which panel can you find a list of all of the game objects in the Scene?

a) Inspector   b) Project   c) Scene   d) Hierarchy

If you want to create an instance of a prefab in your scene, you drag the prefab from the project panel into either of which two panels?

a) Inspector or Hierarchy
b) Inspector or Scene
c) Scene or Hierarchy
d) Game or Inspector
What colour represents the X axis?

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PHASE 1 QUIZ

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**c) Scene or Hierarchy**
d) Game or Inspector
PHASE TWO
TANK CREATION
1. In the **Models** folder of the **Project**, find the model called **Tank** and **drag** it into the **Hierarchy** panel.

2. At the top of the **Inspector** panel, set the **Layer** of the **Tank** GameObject to **Players**.

3. For the **Change Layer** dialog that appears, select **No, this object only**.
1. Add a RigidBody component
2. Expand the Constraints area of the RigidBody
3. Under Constraints check Freeze Position for the Y axis
4. Check Freeze Rotation for the X and Z axes
1. **Add a Box Collider** component to the **Tank** GameObject.

2. On the **Box Collider** component change the **Center** to (0, 0.85, 0).

3. Also, change the **Size** to (1.5, 1.7, 1.6).
1. Add an Audio Source component to the Tank GameObject

2. On the Audio Source component change the AudioClip to EngineIdle using the circle-select button

3. Also check Loop
1. **Add** another **Audio Source** component
2. On the **second Audio Source** component uncheck **Play On Awake**
3. Select the **Prefabs** folder in the **Project** panel
4. **Click and drag** the **Tank** GameObject from the **Hierarchy** to the **Project** panel
5. **Save** the scene!
1. From the **Prefabs** folder drag the **DustTrail** prefab onto the **Tank** GameObject in the **Hierarchy** to make it a child GameObject.

2. Duplicate the **DustTrail** so that there are two, use Command-D on Mac, Ctrl-D on PC.
1. **Rename** one of the child GameObjects from **DustTrail** to **LeftDustTrail**

2. Set the **Position** of **LeftDustTrail** to \((-0.5, 0, -0.75)\)

3. **Rename** the other **DustTrail** GameObject to **RightDustTrail**

4. Set the **position** of **RightDustTrail** to \((0.5, 0, -0.75)\)
1. In the **Scripts/Tank** folder, find the **TankMovement** script

2. Drag and drop it onto the **Tank** GameObject

3. Open the **TankMovement** script using **double click** on the script in the **Project** view
Script Checklist

1. GET THE INPUT
2. SETUP THE AUDIO
3. SETUP FORWARD/BACK MOVEMENT
4. SETUP TURNING
1. For the **Movement Audio** variable use the first **Audio Source** component. **Drag** the name of the component and drop it onto the space next to **Movement Audio**

2. For the **Engine Idling** variable, click on the **circle-select** button and choose the **EnginIdle** audio clip from the list
1. For the **Engine Driving** variable, click on the circle-select button & choose **EngineDriving**

2. At the top of the **Inspector**, apply the changes to your Tank prefab by clicking **Apply**

3. **Save** your scene using **File > Save**
1. Press **Play** and try driving the tank around!

2. Remember to press Play again to stop playing afterwards

3. **Save** the scene!
END OF PHASE TWO
PHASE 2 QUIZ

Which of these is a component used to play sounds in a game?

a) Audio Source   b) Audio Clip   c) Audio Listener   d) Audio Mixer

What variable type do we use to store Rotation?

a) Integer   b) Vector3   c) Transform   d) Quaternion

After the following line of code is run, what will the Rigidbody’s position be?

m_Rigidbody.MovePosition(new Vector3(0, 0, 10));

a) Ten units from it’s previous position in the Z axis
b) At the origin
c) At (0, 0, 10)
d) This won’t move the Rigidbody
Which of these is a component used to play sounds in a game?

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PHASE THREE
CAMERA
1. Use the **Create** menu in the **Hierarchy** to create an Empty GameObject by choosing **Create Empty**

2. **Rename** the empty GameObject to **CameraRig**
1. Reset its **Position** by clicking the **Cog** icon next to its **Transform** component and choosing **Reset Position**

2. Set the **Rotation** of the **CameraRig** to \((40, 60, 0)\)
1. In the **Hierarchy** drag the **Main Camera** GameObject onto the **CameraRig** GameObject to make it a child.

2. Set the **Position** of the **Main Camera** to \((0, 0, -65)\).

3. Make sure the **Rotation** of the **Main Camera** is \((0, 0, 0)\).
What is a frustum?
• What is a frustum?
CAMERA

• What is a frustum?
• What is an **orthographic camera**?
What is an orthographic camera?
What is an orthographic camera?
What is an orthographic camera?
What is an orthographic camera’s size?

Remember: We **Zoom** by setting the size.
What is a camera’s **aspect**?

1080p means a screen is **1920 x 1080 pixels**

1920 x 1080 is an **aspect ratio** of 16:9

To find the aspect we divide - the **aspect** of 16:9 is \( \frac{16}{9} = 1.778 \)
What should our camera do?
What should our camera do?

• Follow the tanks
What should our camera do?

• Follow the tanks
• Re-size (Zoom) to fit the tanks on screen
1. Find the **Scripts/Camera** folder

2. **Drag and drop** the **Camera Control** script onto the **CameraRig** GameObject in the **Hierarchy**

3. **Double click** on the script name on the **Component** to **open it**
I. Find the Average of the Tanks’ positions
II. Set the CameraRig to that position each frame
Following the tanks is easy!

What about zoom?
SIZE

SIZE x ASPECT
DISTANCE IN Y AXIS
SIZE = DISTANCE IN Y AXIS
DISTANCE IN X AXIS
SIZE x ASPECT
DISTANCE = SIZE x ASPECT
DISTANCE = SIZE × ASPECT
DISTANCE \over ASPECT = SIZE
1. Select the **CameraRig** GameObject
2. Drag the **Tank** GameObject onto the name of the public variable **Targets** on the **Camera Control** (script) component
1. Press **Play** and give your game a test
2. Stop Play afterwards! (not pause)
3. **Save** the scene!
END OF
PHASE THREE
In a game object’s Transform component on the Inspector, what does the property ‘Position’ display?

a) The world space position  
b) The local space position  
c) The position relative to it’s children  
d) The relationship between it’s Scale and it’s Euler angles rotation

With an orthographic camera, which of the following would have the effect of zooming in?

a) Move the camera’s position closer  
b) Decreasing the camera’s orthographic size  
c) Increasing the camera’s orthographic size  
d) Increasing the camera’s aspect
PHASE 3 QUIZ

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PHASE FOUR
HEALTH
1. Make sure the transform toggle above the Scene View is set to **Pivot** and not **Center**

2. **Create a Slider** using **GameObject > UI > Slider** from the top menu
1. Select the **EventSystem** GameObject
2. On the **Standalone Input Module** component change the **Horizontal Axis** to **HorizontalUI**
3. Set the **Vertical Axis** to **VerticalUI**
4. Select the **Canvas** GameObject
5. On the **Canvas Scaler** component change the **Reference Pixels per Unit** to **1**
1. On the **Canvas** component of the **Canvas** GameObject change the **Render Mode** to **World Space**
1. In the **Hierarchy** drag **Canvas** onto the **Tank** GameObject to make it a child
2. Select the **Canvas**, on the **RectTransform** component change **Position** to \((0, 0.1, 0)\)
3. Change the **Width** and **Height** to **3.5**
4. Change the **Rotation** to \((90, 0, 0)\)
5. **Save** the scene!
1. Expand the **Canvas** and all of it’s children by Alt-clicking the arrow to its left

2. **Select** the **(Handle)SlideArea** and **delete** it

3. **Multi-Select** **Slider, Background, Fill Area** and **Fill**

4. **Click** on the **Anchor Presets** drop-down and **Alt-Click** on the **lower-right** preset to **stretch** the **GameObjects** over the entire canvas
1. Select the **Slider** GameObject
2. On the **Slider** component uncheck **Interactable**
3. Change the **Transition** to **None**
4. Change the **Max Value** and **Value** to **100**
1. Rename the **Slider** to **HealthSlider**

2. Select the **Background** GameObject

3. On the **Image** component use the circle-select to change the **Source Image** to **HealthWheel**

4. **Click** on **Color** to change the **alpha (A)** to **80**
1. Select the **Fill** GameObject
2. Set the **Source Image** on the **Image** component to **HealthWheel**
3. Change the **alpha (A)** to **150**
4. Change the **Image Type** to **Filled**
5. Change the **Fill Origin** to **Left**
6. Uncheck **Clockwise**
1. In the **Scripts/UI** folder, find the **UIDirectionControl** script

2. Select the **HealthSlider** GameObject and add the **UIDirectionControl** script to it

3. Select the **Tank** GameObject and click **Apply** at the top of the Inspector to update the prefab
1. Find the **TankExplosion** prefab in the **Prefabs** folder. **Drag** it into the **Hierarchy**

2. Add an **AudioSource** component to the **TankExplosion** GameObject

3. Assign the **TankExplosion** Audio Clip to the Audio Source, and uncheck **Play On Awake**
1. On the **TankExplosion** GameObject, click **Apply** to update the prefab

2. **Delete** the **TankExplosion** prefab from the **Hierarchy**

3. Find the **TankHealth** script in the **Scripts/Tank** folder. **Drag** it onto the **Tank** GameObject

4. **Double-click** on the **TankHealth** script to **open** it for editing
Script Checklist

1. SETUP TANK DAMAGE
2. UPDATE UI BASED ON TANK HEALTH
3. TANK DEACTIVATION
1. Select the **Tank** GameObject

2. **Drag and drop** the **HealthSlider** GameObject from the **Hierarchy** onto the **HealthSlider** public variable of the **TankHealth** script

3. Do the same with the **Fill** GameObject for the **Fill Image** public variable

4. Drag & Drop the **TankExplosion** prefab onto the **Explosion Prefab** public variable
1. At the top of the Inspector, **Apply** the changes to the **Tank** prefab.

2. **Save** the scene!
END OF PHASE FOUR
PHASE 4 QUIZ

What component do all UI game objects have that most game objects do not?
a) Canvas  
b) Canvas Scaler  
c) Rect Transform  
d) Event System

To switch off a Game Object, which code syntax is correct?
a) gameObject.SetActive(false);
b) gameObject.SetActive(false);
c) gameObject.enabled = false;
d) gameObject.activated = false;

How do you stop the player from being able to drag to adjust the value of a slider?
a) Delete the Handle Slide Area game object  
b) Change the Slider’s Transition to None  
c) Delete the Background game object  
d) Uncheck Interactable on the Slider component
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c) Delete the Background game object

d) Uncheck Interactable on the Slider component
Phase Five Shells
1. Find the model named Shell in the Models folder. Drag it into the Hierarchy

2. Add a Capsule Collider component to the Shell GameObject

3. Check Is Trigger on the Capsule Collider
1. Set the **Direction** to **Z-Axis**

2. Change the **Center** of the **Capsule Collider** to \((0, 0, 0.2)\)

3. Change the **Radius** of the **Capsule Collider** to **0.15** and the **Height** to **0.55**

4. **Add a Rigidbody** component to the **Shell** GameObject
1. Find the prefab **ShellExplosion** in the **Prefabs** folder. **Drag** it onto the **Shell** GameObject to make it a child.

2. **Add** an **AudioSource** component to the **ShellExplosion** GameObject.
1. Use the **circle-select** to set **AudioClip** of the **AudioSource** to **ShellExplosion**

2. Uncheck **Play On Awake** on the **AudioSource**
1. **Reselect the Shell** GameObject
2. **Add a Light Component**
1. In the **Scripts/Shell** folder, find the **ShellExplosion** script, drag it onto the **Shell** GameObject in the **Hierarchy**

2. **Double click** on the **ShellExplosion** script to open it for editing
OVERLAP SPHERE

TANK 1 MINIMUM OR ZERO DAMAGE

TANK 2 SUCH DAMAGE, MANY OW
OVERLAP SPHERE

TANK 1

MINIMUM OR ZERO DAMAGE

TANK 2

LESS THAN ZERO DAMAGE
Script Checklist

1. FIND TANKS TO AFFECT
2. APPLY DAMAGE TO AFFECTED TANKS
3. APPLY FORCE TO AFFECTED TANKS
4. PLAY SOUND AND PARTICLE EFFECTS
5. TIDY REMAINING GAME OBJECTS
1. With the **Shell** GameObject still selected **drag** the child GameObject called **ShellExplosion** onto the **Explosion Particles** and **Explosion Audio** public variables

2. Set the **Tank Mask** public variable to **Players**

3. Drag the **Shell** GameObject to the **Prefabs** folder in the **Project** panel to save it as a prefab
1. **Delete** the **Shell** GameObject from the Hierarchy
2. **Save** the scene!
END OF PHASE FIVE
PHASE 5 QUIZ

What type does the Physics.OverlapSphere function return?

a) Collider[]  b) Transform[]  c) Rigidbody[]  d) GameObject[]

What must be changed in the Inspector of a Capsule Collider for OnTriggerEnter to be called for that collider?

a) A trigger material must be used
b) The center must be offset
c) The radius must be sufficiently small that it is less than the offset’s distance
d) The Is Trigger checkbox must be checked

Why is there an f after some numbers in code?

a) The f replaces the decimal place when writing numbers less than 1
b) The f stands for figure and tells the compiler to keep the number constant
c) The f stands for forbidden, telling the compiler never to use them. like ever.
d) The f stands for float, and tells the compiler to treat it as a floating point number
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a) `Collider[]`  b) `Transform[]`  c) `Rigidbody[]`  d) `GameObject[]`

What must be changed in the Inspector of a Capsule Collider for `OnTriggerEnter` to be called for that collider?

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PHASE SIX
SHOOTING
1. **Select** the **Tank** GameObject in the **Hierarchy**

2. **Right-click** on the **Tank** GameObject and choose **Create Empty**

3. **Rename** the child GameObject to **FireTransform**

4. Set the **Position** of **FireTransform** to (0, 1.7, 1.35)

5. Set the **Rotation** of **FireTransform** to (350, 0, 0)
1. **Right-click** on **Canvas** in the Hierarchy and choose **UI > Slider**

2. Rename the new **Slider** to **AimSlider**

3. Alt-click the arrow to the left of **AimSlider** to **Expand** the GameObject so that its children are visible in the Hierarchy

4. **Delete** the **Background** and **Handle Slide Area** GameObjects
1. Reselect the **AimSlider** GameObject and find the **Slider** component in the **Inspector**

2. Uncheck **Interactable**

3. Set the **Slider** component’s **Transition** to **None**

4. Set **Direction** to **Bottom To Top**

5. Set the **Min Value** to **15**

6. Set the **Max Value** to **30**
1. Multi-Select the **AimSlider** and **Fill Area** GameObjects

2. In their **Rect Transform** components **click** on the **Anchor Presets** drop down and **alt-click** the **lower-right** option to **Stretch** the GameObjects vertically and horizontally over the canvas
1. Expand **Fill Area** and select the **Fill**

2. On the **Rect Transform**, set **Height** to 0 to remove offsets from the parent Rect

3. On the **Fill** GameObject, for the **Image** component use the **circle-select** button to change the **Source Image** to **Aim Arrow**
1. Select the **AimSlider** GameObject

2. Use the **Rect Tool** (T) to drag the Left / Right bounds of the Rect so that it's as narrow as the Tank

3. Drag the **AimSlider** forward & up from the Tank, then drag out the top edge to make a longer slider

4. Our values are \((1, -9, -1, 1, 3)\)
1. Find the **TankShooting** script in the **Scripts/Tank** folder

2. Drag and drop it onto the **Tank** GameObject in the **Hierarchy**

3. Double-click on the **TankShooting** script in the **Project** panel to open it for editing
Script Checklist

1. CHECK FIRE BUTTON STATE
2. UPDATE FIRING CHARGE
3. INstantiate SHELL WHEN BUTTON RELEASED OR AT MAXIMUM CHARGE
SHOOTING

1. Find the **Shell** prefab in the **Prefabs** folder and **drag** it onto the **Shell** public variable

2. Find the **FireTransform** child GameObject and **drag** it onto the **FireTransform** public variable

3. Find the **AimSlider** GameObject which is a child of the **Canvas** GameObject. **Drag** it onto the **AimSlider** public variable
1. Find the **second Audio Source** on the **Tank GameObject**.
   This is the one with no clip assigned as well as **Loop** and **Play On Awake** unchecked.

2. Drag and drop the name of this **Audio Source** onto the **Shooting Audio** public variable of the **TankShooting** script.
1. Use the **circle-select** button to set the **Charging Clip** variable to **ShotCharging**

2. Likewise use the **circle-select** button to set the **Fire Clip** variable to **ShotFiring**

3. Ensure the **Tank** GameObject is still selected and click **Apply** at the top of the Inspector to update the prefab
1. The **Tank** is now finished! Give it a test!

2. **MAKE SURE THAT ALL CHANGES ARE APPLIED** to the **Tank** prefab by pressing **Apply** at the top of the **Tank** GameObject’s **Inspector**

3. **Delete** the **Tank** GameObject from the scene

4. **Save** the scene!
END OF PHASE SIX
PHASE 6 QUIZ

What component is used to create the visual parts of a UI slider?
a) Image  b) Sprite  c) Slider  d) It must be done with a custom script

Which of the following functions returns true whenever an input button is held?
 a) Input.GetButton
 b) Input.GetButtonDown
 c) Input.GetButtonUp
 d) Input.GetAxis

A Rigidbody’s velocity is of which type?
 a) float
 b) Transform
 c) Vector3
 d) Velocity
PHASE 6 QUIZ

What component is used to create the visual parts of a UI slider?

a) **Image**  b) Sprite  c) Slider  d) It must be done with a custom script

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PHASE 6 QUIZ

What component is used to create the visual parts of a UI slider?

a) Image   b) Sprite   c) Slider   d) It must be done with a custom script

Which of the following functions returns true whenever an input button is held?

a) Input.GetButton  
b) Input.GetButtonDown  
c) Input.GetButtonUp  
d) Input.GetAxis

A Rigidbody’s velocity is of which type?

a) float  
b) Transform  
c) Vector3  
d) Velocity
1. Create two empty GameObjects by going to the Create menu in the Hierarchy and selecting Create Empty - twice!

2. Rename the empty GameObjects to SpawnPoint1 and SpawnPoint2
1. Position SpawnPoint1 at \((-3, 0, 30)\)
2. Set the Rotation of SpawnPoint1 to \((0, 180, 0)\)
3. Position SpawnPoint2 at \((13, 0, -5)\)
4. Ensure the Rotation of SpawnPoint2 is \((0, 0, 0)\)
1. In the **Inspector**, to the left of the GameObject’s name is an icon for the GameObject’s gizmo. Change the gizmo for **SpawnPoint1** to the **blue** name tag.

2. Change the gizmo for **SpawnPoint2** to the **red** name tag.
1. Go to **GameObject > UI > Canvas** to create a new canvas GameObject

2. **Rename it MessageCanvas**

3. On the Scene view, click on the **2D** button to enable 2D mode

4. With the **MessageCanvas selected** and the mouse cursor over the Scene view, **press F** to frame the selected **MessageCanvas**
1. Right-click **MessageCanvas** and choose **UI > Text** to create a **Text** GameObject as a child of the **MessageCanvas**
1. On the `RectTransform` component of the `Text` GameObject set the **Anchors** for the **X** and **Y axes** to have a **Min** of 0.1 and a **Max** of 0.9

2. Set the **Left**, **Right**, **Top**, **Bottom** and **Pos Z** to 0
1. On the **Text** component set the **Text** to be “TANKS!”

2. Use the **circle-select** button to change the **Font** to **BowlbyOne-Regular**

3. Change the **Alignment** to **centre** and **middle**
1. Enable Best Fit
2. Set the Max Size to 60
3. Set the Color to White (255, 255, 255, 255)
1. **Click** the **Add Component** button and type **Shadow** in the search bar

2. **Click** on the **Shadow** component in the list to add it to the **Text** GameObject

3. Set **Effect Color** to Brown (114, 71, 40, 128)

4. Set the **Effect Distance** to (-3, -3)

5. Disable 2D Mode on the Scene View
1. **Select** the **CameraRig** GameObject
2. Go to **Edit > Frame Selected** (Shortcut - F)
3. On the **CameraControl** (script) component, set the **Targets** array to a size of 0 by typing into the **Size** property, and pressing Return
4. **Double click** on the **CameraControl** script to open it for editing
1. Click the **Create** button on the **Hierarchy** and choose **Create Empty**

2. **Rename** it **GameManager**

3. Find the **GameManager** script in the **Scripts/Managers** folder

4. **Drag** it onto the **GameManager GameObject** to add it as a component
1. **Drag** the **CameraRig** GameObject from the **Hierarchy** onto the **Camera Control** public variable of the **GameManager** (script) component

2. Expand the **MessageCanvas** GameObject

3. **Drag** the **Text** child GameObject onto the **Message Text** public variable of the Game Manager

4. Find the **Tank** prefab in the **Prefabs** folder and **drag** it onto the **Tank Prefab** public variable
1. Expand the **Tanks** array on the **GameManager** script, set the **Size** to **2**

2. Expand **Element 0**, change the **Player Color** to Blue (42, 100, 178)

3. Drag the **SpawnPoint1** GameObject from the **Hierarchy** onto the **Spawn Point** variable of **Element 0** in the **Tanks** array
1. Expand **Element 1** and change the **Player Color** to Red ( \(229, 46, 40\))

2. Drag on the **SpawnPoint2** GameObject as the **Spawn Point** of Element 1
MANAGERS

STRUCTURE

Game Manager

INITIALIZATION
SPAWN ALL TANKS
SET CAMERA TARGETS

RUN GAME STATES
ROUND STARTING
ROUND PLAYING
ROUND ENDING

TANK MANAGER
Game Manager

TANK MANAGER

SCRIPTS
- SHOOTING
- MOVEMENT

VISIBLE ELEMENTS
- UI
Start()

Use array of **TankManagers** to spawn tanks

Set the **CameraControl** script **Targets** array

Start the **GameLoop()** Coroutine
1. **Double click** the *GameManager* script to **open** it

2. **Double click** the *TankManager* script to **open** it
Game Manager Operations:

- **GameLoop()**
- **RoundStarting()**
- **RoundPlaying()**
- **RoundEnding()**

wait, then..
void MyFunction()
{
}

IEnumerator MyCoroutine()
{
    yield
}

IEnumerator MyCoroutine()
{
    while()
    {
        yield
    }
}
**GAME MANAGER**

- **GameLoop()**
  - RoundStarting
  - Round Playing
  - Round Ending

- **RoundStarting**:
  - Reset all tanks
  - Disable all Tank Controls
  - Set Camera Pos & Size
  - Increment Round number
  - Set Message UI

- **Round Playing**:
  - Enable all Tank Controls
  - Empty Message UI
  - Wait for One Tank Left

- **Round Ending**:
  - Disable all Tank Controls
  - Clear existing & get round winner
  - Check for Game Winner
  - Calculate Message UI & Show

**TANK MANAGER**

- **Reset()**
  - (De/Reactivate / Position)

- **DisableControl()**
  - (Cannot Move / Shoot, UI off)

- **EnableControl()**
  - (Can Move / Shoot, UI on)
1. **Save** the scene!

2. Grab a neighbour and give it a test!
END OF
PHASE SEVEN
PHASE 7 QUIZ

Which attribute can be placed before a class declaration to make it's properties appear in the Inspector panel?

a) ShowInInspector
b) HideInInspector
c) Serializable
d) ShowInfo

What type is commonly returned by a function that will be used as a co-routine?

a) IEnumerator
b) IEnumerable
c) void
d) Interface

What component does the UI system to display text?

a) String  b) Message  c) Text  d) WordRenderer
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What component does the UI system to display text?

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1. With the **GameManager GameObject selected**, **click** the **Add Component** button and choose **Audio > Audio Source**.

2. Use the **circle-select** button to set the **Audio Clip** to **BackgroundMusic**

3. **Check Loop**
1. **Right click** on the empty **AudioMixers** folder and choose **Create > Audio Mixer**

2. **Rename it** **MainMix**

3. **Go to Window > Audio Mixer**
1. Use the + icon above the Groups hierarchy to add a child of the Master group
2. Name the new group Music
3. Reselect the Master group and create another group as its child
4. Rename this group SFX
1. **Reselect** the **Master** group and **create a third child group**

2. **Rename** the last group **Driving**

3. Make sure they are all children of the **Master group**
1. **Select** the **Tank** prefab in the **Prefabs** folder.

2. For the **First Audio Source** use the **circle-select** button to set its **Output** to the **Driving** group of the **MainMix** audio mixer.

3. For the **Second Audio Source** use the **circle-select** to set its **Output** to the **SFX** group of the **MainMix** audio mixer.
1. Find the **Shell** prefab in the **Prefabs** folder. **Expand** it so that you can see its children.

2. **Select** the **ShellExplosion** child

3. Set the **Output** for the **AudioSource** on the **ShellExplosion** child to the **SFX** group of the **MainMix** audio mixer
1. In the Hierarchy select the GameManager

2. Set the Output for the Audio Source to the
   Music group of the MainMix audio mixer

3. Select the TankExplosion prefab in the Project, set its Audio Source output to the SFX group of the MainMix audio mixer
1. Return to the **Audio Mixer Window**
2. Make sure you have **MainMix** selected
3. **Select** the **Music** group of **MainMix**
4. Set its **Attenuation** to **-12** using the fader
5. **Select** the **Driving** group of **MainMix**
6. Change its **Attenuation** to **-25**
1. Reselect the Music group

2. In the Inspector click the Add Effect button and choose Duck Volume
1. **Select** the **SFX** group
2. **Click** the **Add Effect** button and choose **Send** effect
3. For the **Send** effect set **Receive** to **Music\Duck Volume**
4. Change the **Send Level** to **0db** (full)
1. **Reselect** the **Music** group

2. For the **Duck Volume** effect change the **Threshold** to **-46**

3. Change the **Ratio** to **250**

4. Change the **Attack Time** to **0**
1. **Save** the scene!

2. Your game is complete! It’s Play Time!
PHASE 8 QUIZ

What is the name of the window to display the flow of Audio signals?
a) Signal  b) Audio Source  c) Audio Mixer  d) Funkatron

What does the ducking audio effect do?
a) pauses and plays audio sources based on pitch
b) lower the attenuation of an audio group based on the attenuation of another
c) it is used to send messages to custom components based on the time of a clip
d) it is used as a trigger for the anatidae effect

How awesome have you all been today?
a) alright I guess
b) not bad
c) pretty, pretty good
d) very
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CONGRATS
YOU DID IT!
CREDITS

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