Section 1 - Individual Work (100 pts):

For this first homework assignment, we're giving you a choice. If you're new to Unity and game development, we recommend following the Unity Beginner Sequence, which runs through the basics of Unity and games programming.

If you're familiar with the material and instead prefer something more challenging, you can follow the Unity Advanced Sequence, where you can learn about Unity's more advanced features, such as cameras, UI, and animation.

You can't complete both sequences for additional extra credit. If you complete both sequences, and receive full credit for everything, you'll receive no more than 100 points. We don't necessarily recommend doing this, as it may take awhile, but if you're really driven to learn Unity and get a jump on more advanced game programming, go for it!

We expect you to complete one of these sequences in its entirety. If you do half of the beginner sequence and half of the advanced sequence, you'll get, at most, 50% credit. Hence we highly recommend you complete the beginner sequence before starting the advanced sequence if you are new to Unity. If you're new to Unity programming but curious about the advanced sequence, wait until you finish the entire beginner sequence before starting advanced, if you desire to do both.

To show your work on the tutorials, you'll submit a screenshot or series of screenshots showing the completed "missions" you've done in green. These screenshots should have your unique username visible. An example of such a screenshot can be seen here: Section 1 - Individual Work Tutorial Submission Example.png.

Each of your playable deliverables should be hosted on either GitHub Pages or Unity Play, and publicly accessible via a url. You'll submit them in the form of a text document filled with the urls.

If you've chosen the Unity Beginner Sequence, we also expect you to submit the design document that you created as part of the JPP.

The assignment is to be submitted via the Brightspace submission link by **January 28th, 2025, 1:00pm**. Late submissions will be penalized by 10% per day according to the syllabus policy.

Unity Beginner Sequence (100 pts)
- **Unity Essentials (40 pts) - https://learn.unity.com/pathway/unity-essentials**
  - **Completed missions (15 pts)**
    - Finished "Mission 1: Editor Essentials" (seven lessons, one checkpoint) **(5 pts)**
    - Finished Missions 2, 4 and 5 (3 Missions) **(10 pts)**
      - Mission 2: 3D Essentials **(Required)**
      - Mission 4: Programming Essentials **(Required)**

- Mission 5: 2D Essentials **(Required)**
  - **Playable deliverable (25 pts)**
    - **Mission 2: 3D Essentials (Required, 10 pts)**: Published prototype with 3D objects that have been moved, materials, directional light, imported assets. Complete challenge of creating a game where a ball moves along a platform and knocks over block of towers
    - **Mission 4: Programming Essentials (Required, 5 pts)**: Unity project where the player is programmed to jump, and a door can be opened when the player approaches it
    - **Mission 5: 2D Essentials (Required, 10 pts)**: Prototype with 2D object manipulation. Complete challenge of making a collectible game
- **Unity Junior Programming Pathway (60 pts) - https://learn.unity.com/pathway/junior-programmer**
  - **Junior Programming - Create with Code 1**
    - **Getting Started (Required) (5 pts)**
    - **Unit 1 - Player Control (Required) (50 pts)**
      - **Car Prototype (20 pts)**: Drivable car with turning and camera following behind
      - **Plane Prototype (20 pt)**: Flying plane prototype with the following things present
        - Plane has some velocity without user input (non-stationary)
        - Plane moves forward, not backward
        - Plane moves at a reasonable speed (not too fast)
        - Plane tilts with up/down arrows, and nothing else
        - Camera is beside the plane, not in front of it
        - Camera follows the plane
        - Level has obstacles
      - **Design Document (5 pts)**
        - Concept sheet (that outlines the core idea of a **new** game) with player control, basic gameplay, sound & effects, gameplay mechanics, UI
        - Timeline for game features
        - Simple diagram or sketch of a minimum viable product
      - **Lessons and Quiz Completion (5 pts)**
    - **Introduction to Project Management and Teamwork (Required) (5 pts)**

Unity Advanced Sequence (100 pts)
- **Unity Creative Core - https://learn.unity.com/pathway/creative-core**
  - Complete any two of the following sequences from the Unity Creative Core Pathway for full credit
    - Note that you can't complete more than two and receive over 100 points, nor can you receive full credit from only doing tutorials. You need to complete two units, including their tutorials and playable deliverables.

- - - Also note that there is no "guided project" you're developing for this. All tutorial lessons with "guided project" in the name can be flagged as complete and skipped
  - **Shaders and materials (50 pts)**
    - **Tutorials (25 pts)**
    - **Playable Deliverable: Still life composition (25 pts)**
      - Uses solid maps, texture maps, transparency, and bump maps **(10 pts)**
      - Uses at least five custom materials **(10 pts)**
      - At least one shader effect is present **(5 pts)**
  - **Lighting (50 pts)**
    - **Tutorials (25 pts)**
    - **Playable Deliverable: Complete a cinematic lighting study (25 pts)**
      - Scene accounts for all light sources in source scene **(10 pts)**
      - Matches mood / aesthetic of source scene **(6 pts)**
      - Uses baked lighting **(4 pts)**
      - Uses light probes **(5 pts)**
  - **Animation (50 pts)**
    - **Tutorials (25 pts)**
    - **Playable Deliverable: Bring the scene to life (25 pts)**
      - Uses at least five custom keyframe animations **(10 pts)**
      - Uses at least three imported animations **(8 pts)**
      - Animations run correctly **(7 pts)**
  - **VFX (50 pts)**
    - **Tutorials (25 pts)**
    - **Playable Deliverable: Add some magic to your scene (25 pts)**
      - Some kind of randomness (direction, lifetime, spawn rate, etc.) is used **(10 pts)**
      - Colors change over time (opacity or hue) **(10 pts)**
      - Particles work as intended **(5 pts)**
  - **Cameras (50 pts)**
    - **Tutorials (25 pts)**
    - **Playable Deliverable: Recreate the scene (25 pts)**
      - Set roughly resembles set of source shot **(10 pts)**
      - Camera position resembles that of source shot **(9 pts)**
      - Camera FOV and perspective resembles that of source shot **(6 pts)**
  - **Post-processing (50 pts)**
    - **Tutorials (25 pts)**
    - **Playable Deliverable: Create a local volume (25 pts)**
      - Post-processing effect is visible **(15 pts)**
      - Post-processing profile changes when an object is approached **(6 pts)**

- - - Post-processing effect gradually changes as object is approached **(4 pts)**
  - ○ **Audio (50 pts)**
    - ■ **Tutorials (25 pts)**
    - ■ **Playable Deliverable: Your own soundscape (25 pts)**
      - At least five sound effects are present **(10 pts)**
      - Ambient sounds are present in the scene **(5 pts)**
      - Direct audio sources are present in the scene **(5 pts)**
      - At least one special effect is used for an audio source **(5 pts)**
  - ○ **UI (50 pts)**
    - ■ **Tutorials (25 pts)**
    - ■ **Playable Deliverable: Make a worldspace UI (25 pts)**
      - Worldspace UI is present with a world position **(15 pts)**
      - Regular UI isn't disrupted by worldspace UI **(10 pts)**