



## Lesson 3.4: User Interface (UI)

<https://codehs.com/course/14904/lesson/3.4>

<b>Description</b>	In this lesson, students learn how to add simple User Interface (UI) elements, like a player score or start menu, to their games.
<b>Objective</b>	<p>Students will be able to:</p> <ul style="list-style-type: none"><li>• Understand how 2D UI elements are integrated into a 3D game.</li><li>• Add a player score to live gameplay.</li><li>• Add a start menu where users can start the game, configure game options, and quit the game.</li></ul>
<b>Activities</b>	<p><a href="#">3.4.1 Video: Heads-Up Display (HUD) Score</a> <a href="#">3.4.2 Notes: Download Unity Project</a> <a href="#">3.4.3 Notes: Create HUD Score</a> <a href="#">3.4.4 Free Response: Configure Score Manager</a> <a href="#">3.4.5 Video: Start Menu Screen</a> <a href="#">3.4.6 Notes: Create Start Menu Screen</a> <a href="#">3.4.7 Notes: Create Options Menu Screen</a> <a href="#">3.4.8 Free Response: Configure Menu Manager Script</a></p>
<b>Prior Knowledge</b>	<ul style="list-style-type: none"><li>• Adding GameObjects and configuring their properties.</li></ul>
<b>Planning Notes</b>	<ul style="list-style-type: none"><li>• In this lesson, students download a project file that is used throughout the activities.</li><li>• The videos in this lesson demonstrate the steps that the students will be taking in their activities. If the students get stuck on the the written activity directions, have them rewatch the videos.</li></ul>
<b>Standards Addressed</b>	
<b>Teaching and Learning Strategies</b>	<p><b>Lesson Opener:</b></p> <ul style="list-style-type: none"><li>• Have students brainstorm and write down answers to the discussion questions listed below. Students can work individually or in groups/pairs. Have them share their responses. [10-30 mins]</li></ul> <p><b>Activities:</b></p>

- Watch the lesson video [14 mins]
  - This is a longer video because it walks through the steps that students will be taking in their activities. Advanced students will likely be able to complete their activities without watching this video.
- Complete *Downloading Unity Project* activity and have students open the new project in Unity. [5 mins]
- Complete the *Create HUD Score* activity. [15 mins]
- Complete the *Configure Score Manager* in Unity and answer questions in the editor. [20-30 mins]
  - Students have used this same collision controller script in previous lessons.
- Watch *Start Menu Screen* video. [14 mins]
  - This is a longer video because it walks through the steps that students will be taking in their activities. Advanced students will likely be able to complete their activities without watching this video.
- Complete *Create a Start Menu Screen* activity in Unity. [20-30 mins]
- Complete *Create Options Menu Screen* activity in Unity. [15 mins]
- Complete \* *Configure Menu Manager Script\** activity in Unity and answer questions in the editor. [30-40 mins]

#### Lesson Closer:

- Have students reflect and discuss their responses to the end-of-class discussion questions. [10-15 mins]

#### Discussion Questions

##### Beginning of Class:

- In development, what does the term UI stand for? What does it encompass in a game?
  - *UI stands for "User Interface." It includes elements and screens in the game that help convey information to students. For example, menus, title screens, and scores are all a part of a game's UI.*
- What purpose does UI have in a game? List a few examples.
  - *The UI helps provide information to users and establish a visual framework for the game to exist in. Examples: a start menu is a landing place for when the game starts and provide the user with options; an end game menu/title tells the user that the game as ended; a health meter tells the user how much life they have left in the game.*
- Do some research online to find examples of effective UI and not-so-effective UI. Describe the function of the UI in each example and why you think it is effective or not. Note: examples could be from games, apps, websites, etc..
  - *Answers will vary.*

##### End of Class:

- What UI elements were incorporated in your game in this lesson? What properties did you consider to make them effective?
  - \*Elements included: start menu with a title and buttons, option menu, and player score. Answers will vary on effectiveness, but may include color, size, font, and screen location.
- If you had the time and knowledge to add more UI to your game in this lesson, what would you add and why?
  - *Answers will vary.*
- If you could add UI to your life, what would you want and why? Are there any devices that can provide you with this information?
  - *Answers will vary. Encourage students to be creative and think about silly ideas, like a Retry button, or more realistic ideas, like an Energy meter.*

## Resources/Handouts

## Vocabulary

Term	Definition
<a href="#">UI</a>	Stands for “user interface.” The way the user interacts with a game or application.
<a href="#">Heads Up Display (HUD)</a>	A display that presents information to the user without requiring them to look away.

Modification: Advanced	Modification: Special Education	Modification: English Language Learners
<ul style="list-style-type: none"> <li>• Have students add other UI elements to their games (other buttons, screens, etc).</li> <li>• Students can probably skip the walk-through videos for their activities.</li> <li>• Have students do their own research into what makes effective vs non-effective UI and present to the class or make a video.</li> </ul>	<ul style="list-style-type: none"> <li>• Have students keep the walk-through videos open at the same time as they are completing their exercise steps.</li> <li>• Pair students, having one read the directions and guide the other take actions in Unity.</li> </ul>	<ul style="list-style-type: none"> <li>• Have students keep the walk-through videos open at the same time as they are completing their exercise steps.</li> <li>• Continue list of vocab terms.</li> <li>• Pair students, having one read the directions and guide the other take actions in Unity.</li> </ul>