# Diseño de Sistemas Interactivos

## Curso 2023 - 2024

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**Despacho 309, 3ª planta. Facultad de Informática.**

Laboratorio 7: Introducción a los UI Toolkit Project samples.

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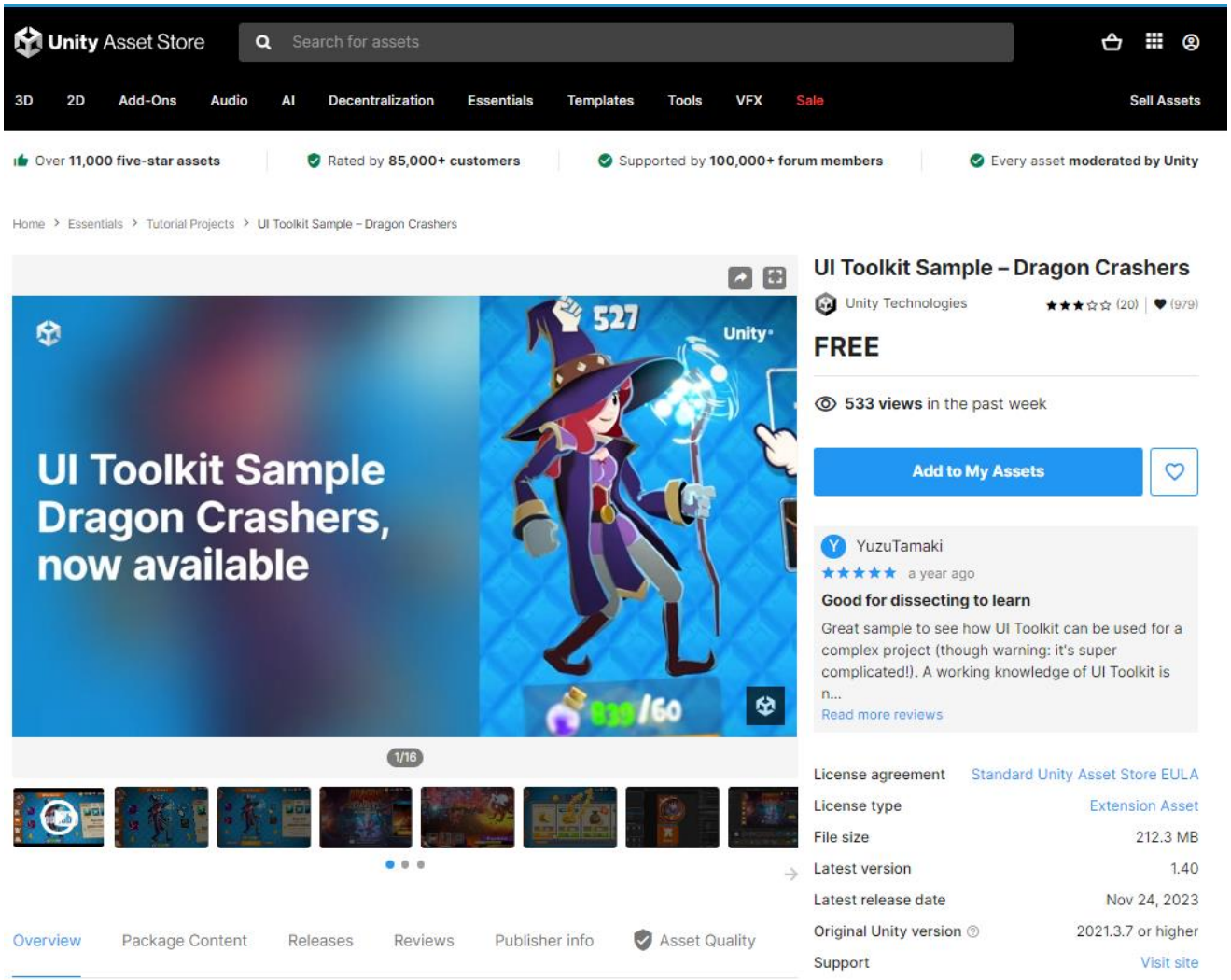
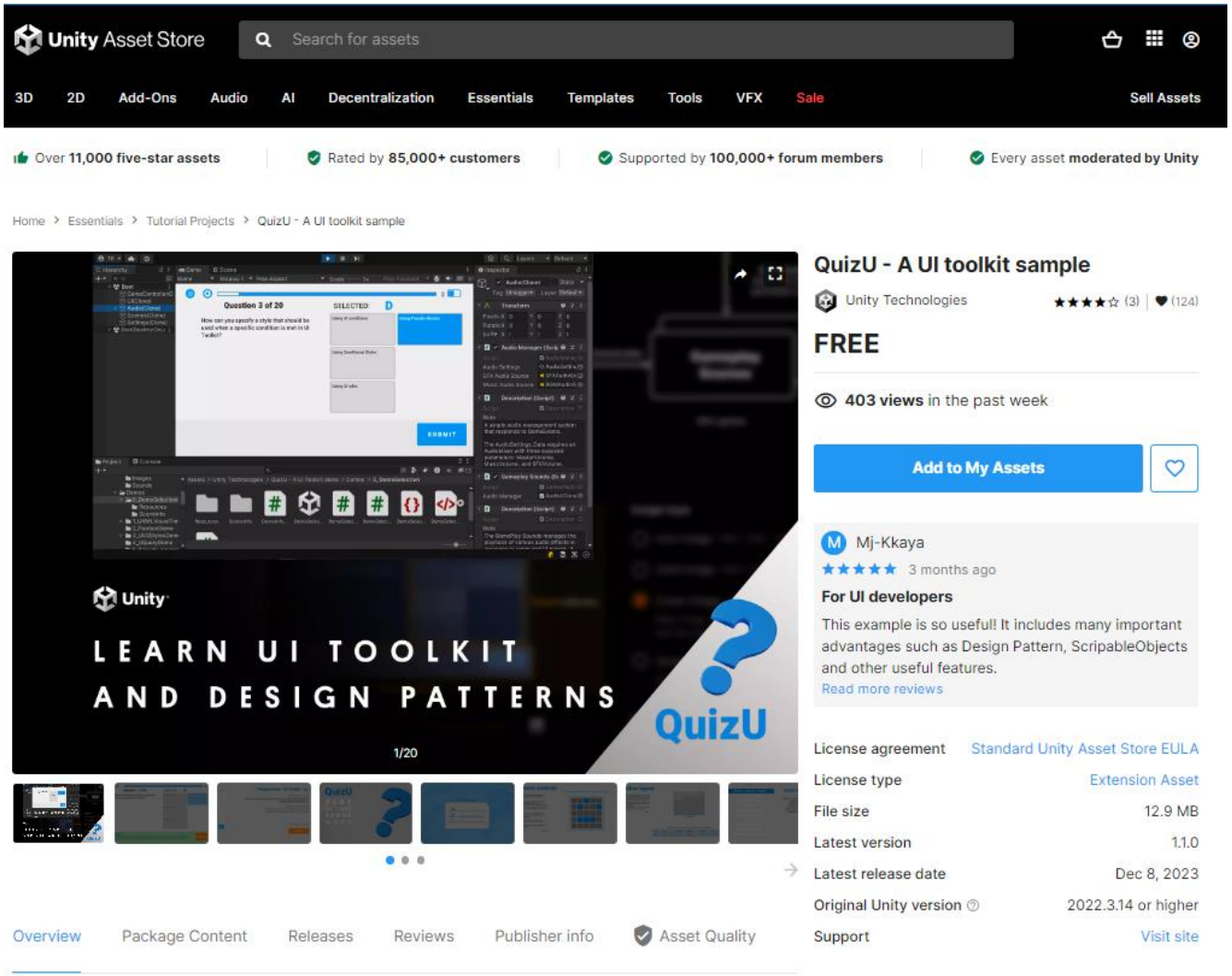
# Dragon Crashers



# QuizU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For UI developers
This example is so useful! It includes many important advantages such as Design Pattern, ScripableObjects and other useful features.
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License type
Extension Asset
File size
12.9 MB
Latest version
1.1.0
Latest release date
Dec 8, 2023
Original Unity version
2022.3.14 or higher
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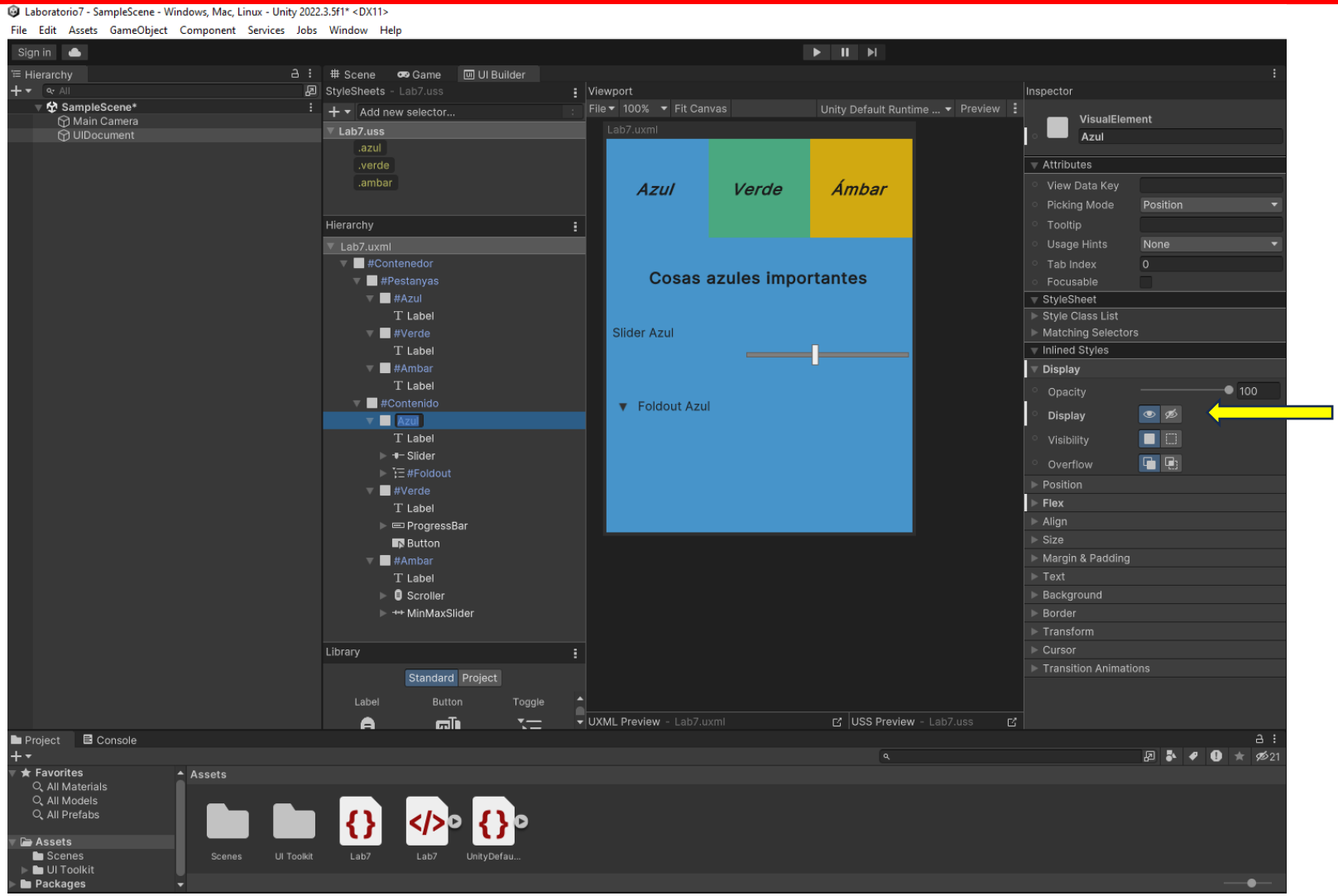
# Menú con pestañas muy sencillo



# Menú con pestañas

Lab7.cs

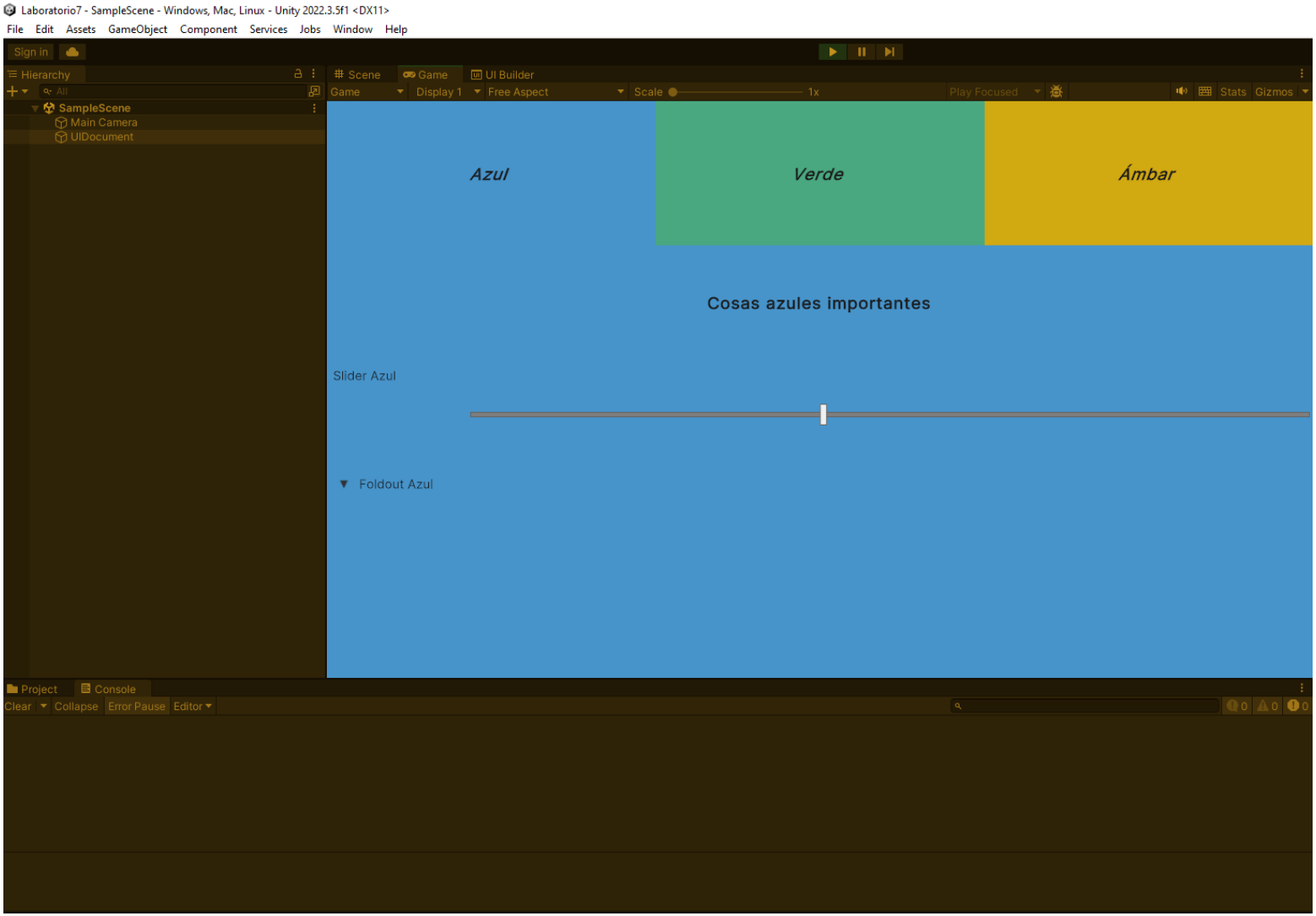
Assets > Lab7.cs > Lab7 > OnEnable

```
using UnityEngine;
using UnityEngine.UIElements;

0 references
public class Lab7 : MonoBehaviour
{
        3 references
    VisualElement contenido_azul;
        3 references
    VisualElement contenido_verde;
        3 references
    VisualElement contenido_ambar;
        2 references
    VisualElement pestanya_azul;
        2 references
    VisualElement pestanya_verde;
        2 references
    VisualElement pestanya_ambar;
    3 references
    private void NoContenido(){
        contenido_azul.style.display  = DisplayStyle.None;
        contenido_verde.style.display = DisplayStyle.None;
        contenido_ambar.style.display = DisplayStyle.None;
    }

```

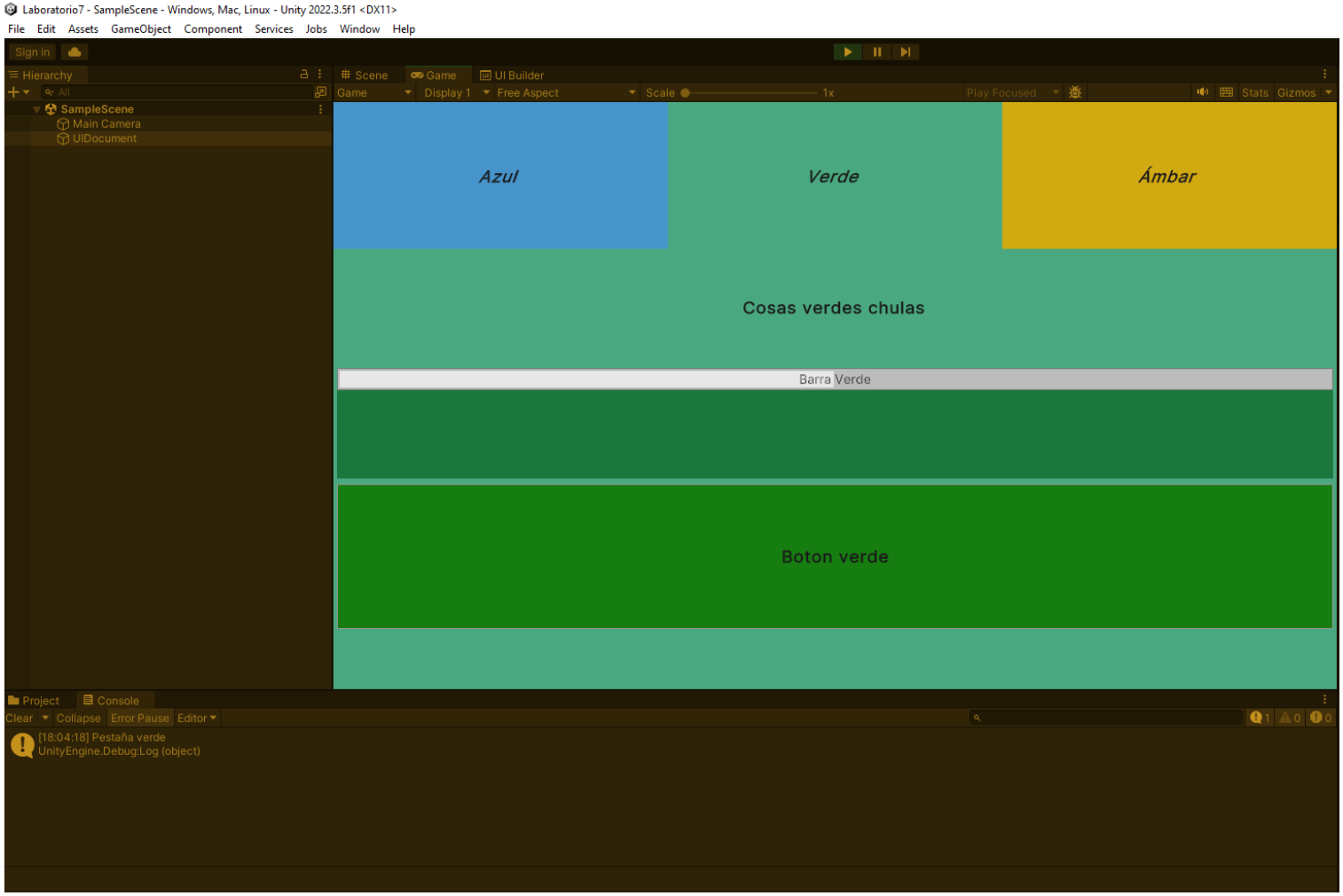
# Menú con pestañas

```
0 references
private void OnEnable() {
    UIDocument uidoc     = GetComponent<UIDocument>();
    VisualElement rootve = uidoc.rootVisualElement;

    VisualElement contenido = rootve.Q("Contenido");
    VisualElement pestanyas = rootve.Q("Pestanyas");

    pestanya_azul  = pestanyas.Q("Azul");
    pestanya_verde = pestanyas.Q("Verde");
    pestanya_ambar = pestanyas.Q("Ambar");

    contenido_azul  = contenido.Q("Azul");
    contenido_verde = contenido.Q("Verde");
    contenido_ambar = contenido.Q("Ambar");


    pestanya_azul.RegisterCallback<MouseDownEvent>(evt => {
        Debug.Log("Pestaña azul");
        NoContenido();
        contenido_azul.style.display  = DisplayStyle.Flex;
    });

    pestanya_verde.RegisterCallback<MouseDownEvent>(evt => {
                    Debug.Log("Pestaña verde");
        NoContenido();
        contenido_verde.style.display  = DisplayStyle.Flex;
    });

    pestanya_ambar.RegisterCallback<MouseDownEvent>(evt => {
        Debug.Log("Pestaña ambar");
        NoContenido();
        contenido_ambar.style.display  = DisplayStyle.Flex;
    });
}
}
```

# Menú con pestañas



# Menú con pestañas



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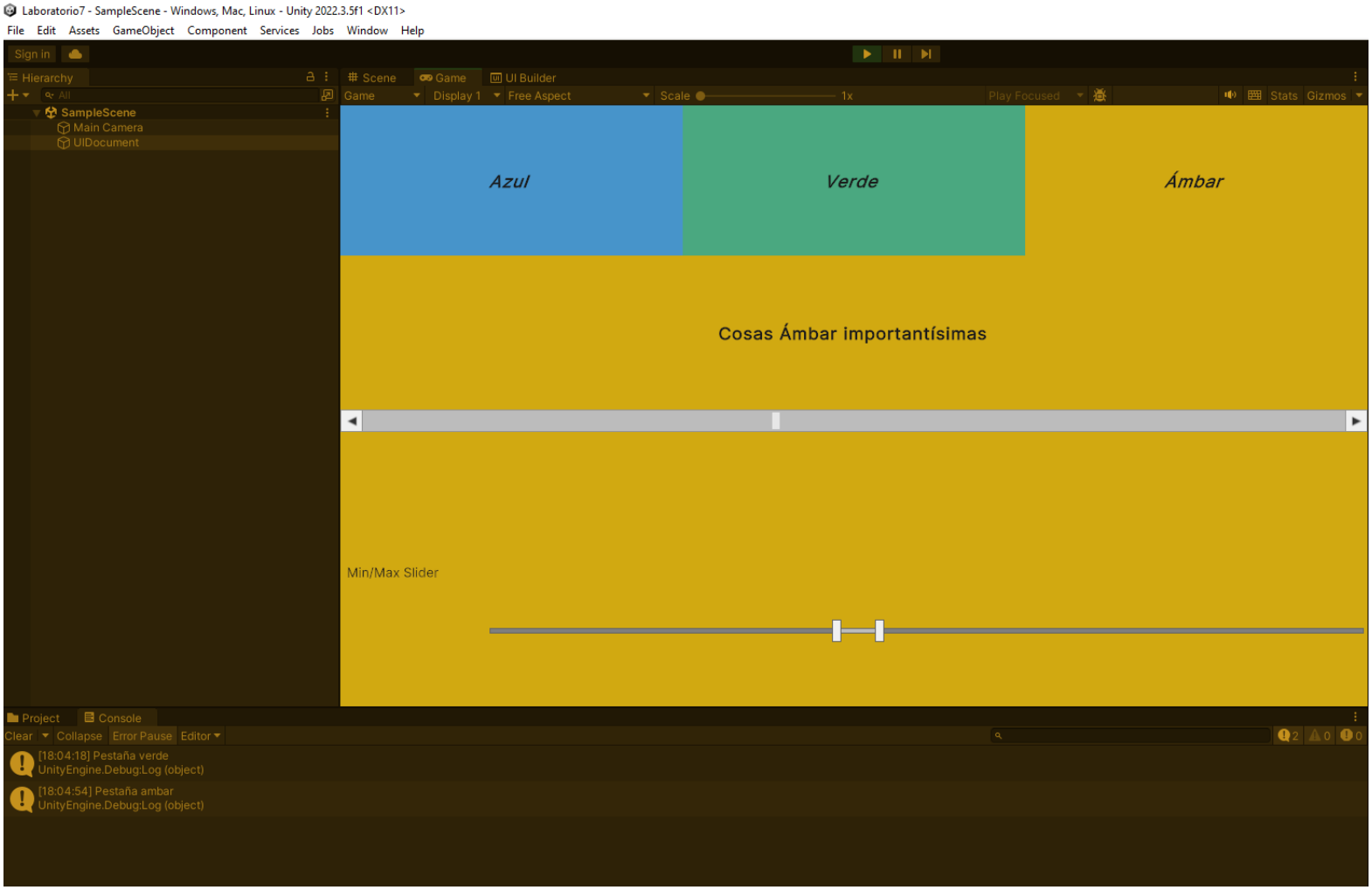
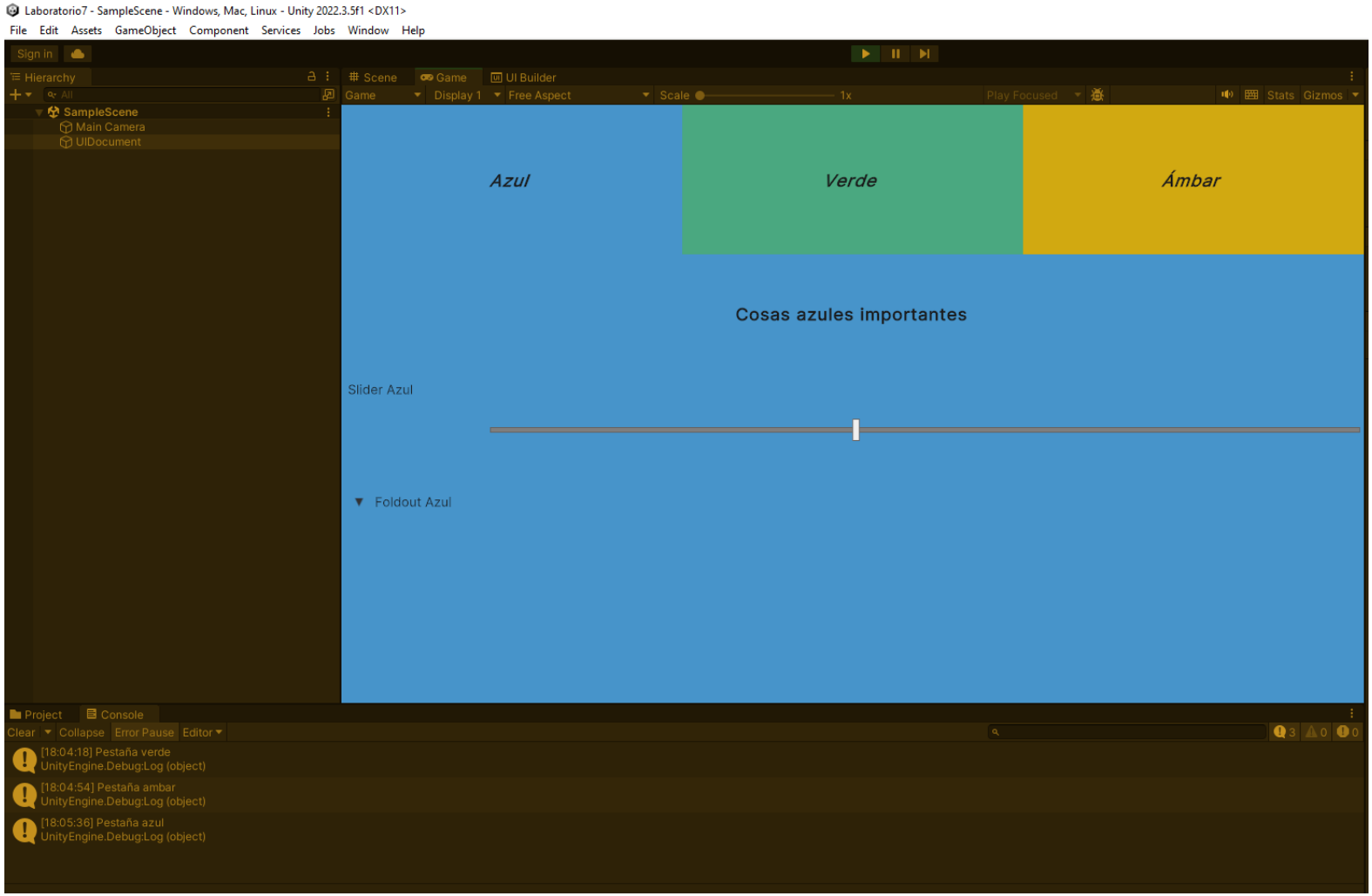


# Menú con pestañas



# Dragon Crashers → Tabbed menú

# Dragon Crashers → TabbedMenu (campus virtual)

TabbedMenuController.cs | TabbedMenu.cs

E: > PROYECTOS > UNITY > sample2 > Assets > Scripts > UI > Components > TabbedMenu.cs > ...

```
1   using UnityEngine;
2   using UnityEngine.UIElements;
3
4   namespace UIToolkitDemo
5   {
6       // adapted from: https://docs.unity3d.com/2021.2/Documentation/Manual/UIE-create-tabbed-menu-for-runtime.html
7
8       // This establishes a tabbed menu system for the UI document. This modifies the original to support multiple
9       // tabbed menus within the same document.
10
11      [System.Serializable]
            1 reference
12      public struct TabbedMenuIDs
13      {
14          // UXML selector for a clickable tab
                2 references
15          public string tabClassName;// = "tab";
16
17          // UXML selector for currently selected tab
                2 references
18          public string selectedTabClassName; //= "selected-tab";
19
20          // UXML selector for content to hide
                2 references
21          public string unselectedContentClassName; // = "unselected-content";
22
23          // use a basename to pair a tab with its content, e.g. 'name1-tab' matches 'name1-content'
24
25          // suffix naming convention for tabs
                2 references
26          public string tabNameSuffix;// = "-tab";
27
28          // suffix naming convention for content
                2 references
29          public string contentNameSuffix;// = "-content";
30
31      }
            0 references
```

# Dragon Crashers → TabbedMenu (campus virtual)

```
32      public class TabbedMenu : MonoBehaviour
            0 references
47          private void OnEnable()
48          {
49              if (m_Document == null)
50                  m_Document = GetComponent<UIDocument>();
51
52              VisualElement root = m_Document.rootVisualElement;
53              m_MenuElement = root.Q(m_MenuElementName);
54
55              // create a new TabbedMenuController for a specific element (fall back to the entire tree if unspecified)
56              m_Controller = (string.IsNullOrEmpty(m_MenuElementName) || m_MenuElement == null) ?
57                  new TabbedMenuController(root, m_TabbedMenuStrings) : new TabbedMenuController(m_MenuElement, m_TabbedMenuStrings);
58
59              // set up the click events on the tab
60              m_Controller.RegisterTabCallbacks();
61          }
62
63          // fill in default names for convenience - make these unique for each tabbed menu/UI
            0 references
64          void OnValidate()
65          {
66              if (string.IsNullOrEmpty(m_TabbedMenuStrings.tabClassName))
67              {
68                  m_TabbedMenuStrings.tabClassName = "tab";
69              }
70
71              if (string.IsNullOrEmpty(m_TabbedMenuStrings.selectedTabClassName))
72              {
73                  m_TabbedMenuStrings.selectedTabClassName = "selected-tab";
74              }
75
76              if (string.IsNullOrEmpty(m_TabbedMenuStrings.unselectedContentClassName))
77              {
78                  m_TabbedMenuStrings.unselectedContentClassName = "unselected-content";
79              }
80
81              if (string.IsNullOrEmpty(m_TabbedMenuStrings.tabNameSuffix))
82              {
83                  m_TabbedMenuStrings.tabNameSuffix = "-tab";
84              }
85
86              if (string.IsNullOrEmpty(m_TabbedMenuStrings.contentNameSuffix))
87              {
88                  m_TabbedMenuStrings.contentNameSuffix = "-content";
89              }
90          }
```

# Dragon Crashers → TabbedMenuController (campus virtual)

TabbedMenuController.cs

E: > PROYECTOS > UNITY > sample2 > Assets > Scripts > UI > Controllers > TabbedMenuController.cs > TabbedMenuController

```
using UnityEngine;
using UnityEngine.UIElements;
using System;

namespace UIToolkitDemo
{

    // adapted from: https://docs.unity3d.com/2021.2/Documentation/Manual/UIE-create-tabbed-menu-for-runtime.html

    1 reference
    public class TabbedMenuController
    {
        // event to notify other objects
        1 reference
        public static event Action TabSelected;

        // base VisualElement of the UI (e.g. MailScreen, CharScreen, ShopScreen)
        5 references
        readonly VisualElement m_Root;

        // strings to query for VisualElements
        12 references
        readonly TabbedMenuIDs m_IDs;

        // initialize the root Visual Element for reuse (constructor for non-Monobehaviour)
        0 references
        public TabbedMenuController(VisualElement root, TabbedMenuIDs ids)
        {
            m_Root = root;
            m_IDs = ids;
        }

        // set up click events for tab buttons
        0 references
        public void RegisterTabCallbacks()
        {
            // identify each tab
            UQueryBuilder<VisualElement> tabs = GetAllTabs();

            // register the ClickTab event handler for each Visual Element
            tabs.ForEach(
                (t) =>
                {
                    t.RegisterCallback<ClickEvent>(OnTabClick);
                });
        }
```

```
        // locate all VisualElements that have the tab class name
        4 references
        UQueryBuilder<VisualElement> GetAllTabs()
        {
            return m_Root.Query<VisualElement>(className: m_IDs.tabClassName);
        }
```

# Dragon Crashers → TabbedMenuController

```
41
42      // process a click
        1 reference
43      void OnTabClick(ClickEvent evt)
44      {
45          VisualElement clickedTab = evt.currentTarget as VisualElement;
46
47          // if the clicked tab is not already selected, select the correct one
48          if (!IsTabSelected(clickedTab))
49          {
50              // de-select any other tabs that are currently active
51              GetAllTabs().Where(
52                  (tab) => tab != clickedTab && IsTabSelected(tab)
53                  ).ForEach(UnselectTab);
54
55              // select the clicked tab
56              SelectTab(clickedTab);
57              AudioManager.PlayDefaultButtonSound();
58          }
59      }
60
```

# Dragon Crashers → radial progress bar

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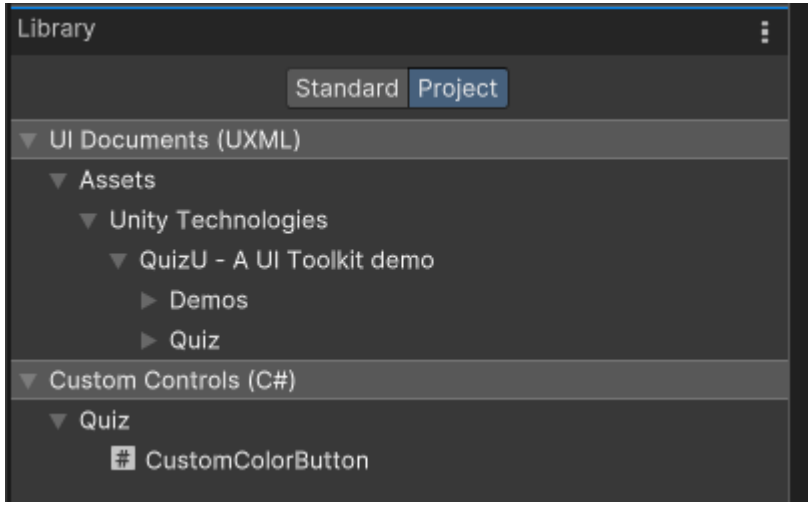
# QuizU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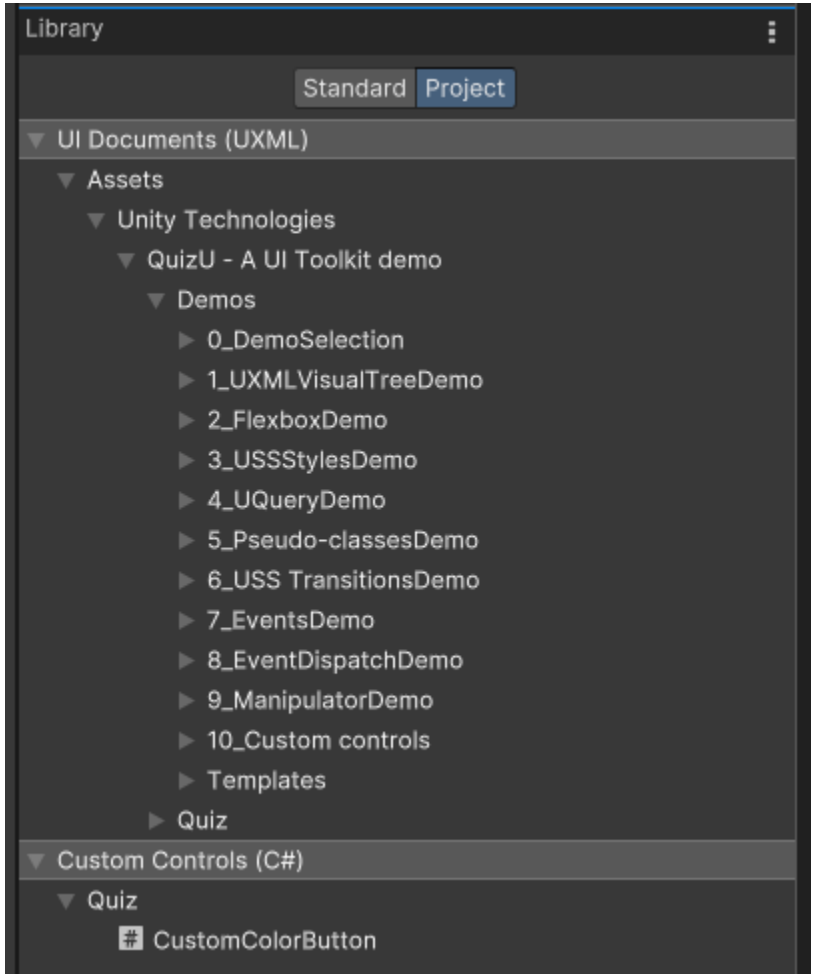
# QuizU - Demos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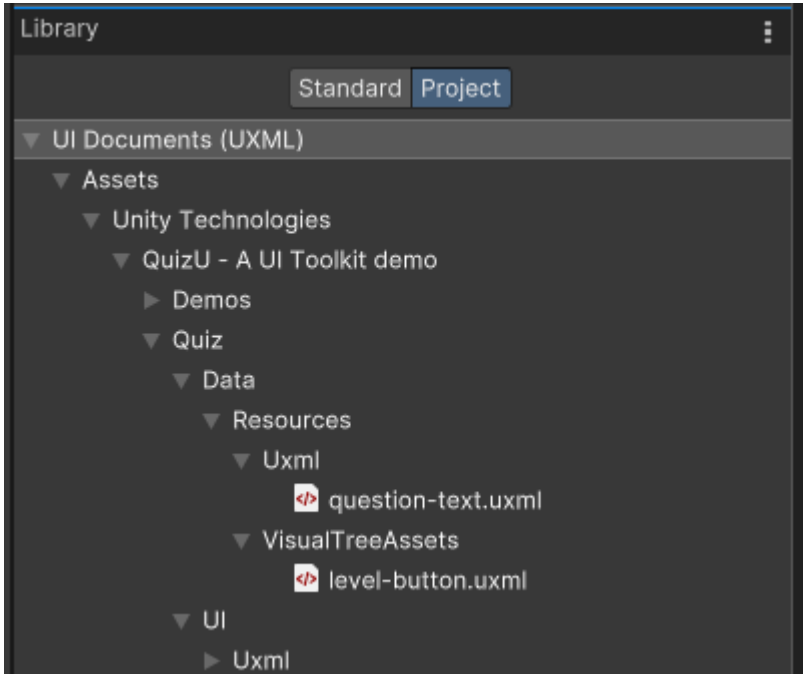
# QuizU - Quiz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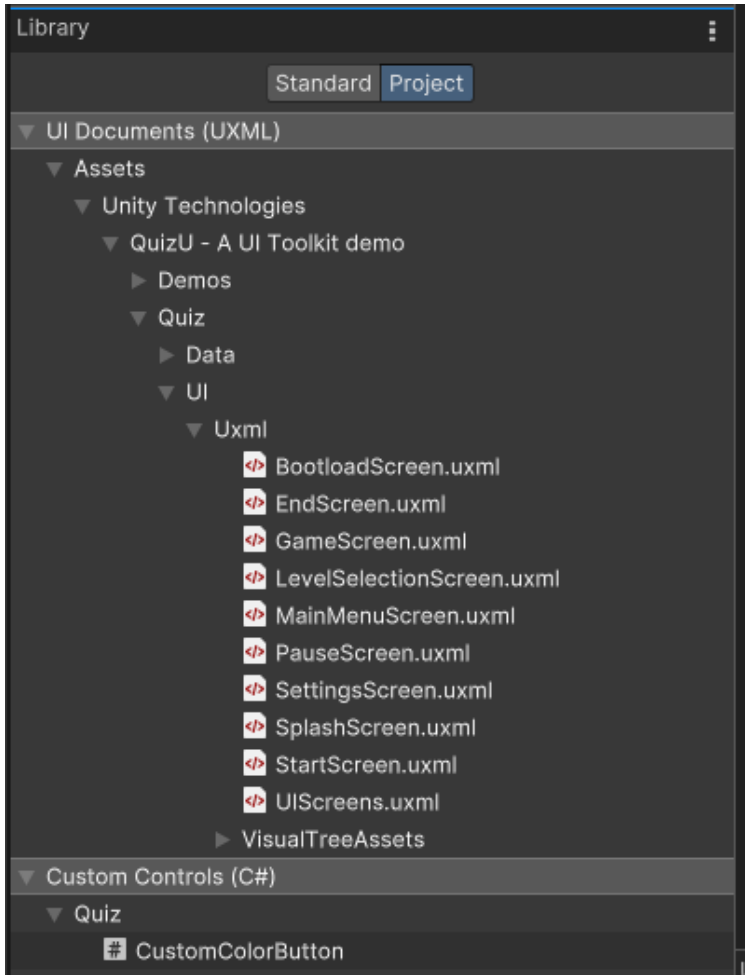
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# CustomControl → C# - USS transition

```
using UnityEngine;
using UnityEngine.UIElements;

namespace Quiz
{
    /// <summary>
    /// This button toggles between an active and inactive color, showing a simple custom control
    /// available in the UI Builder.
    /// </summary>
    3 references
    public class CustomColorButton : Button
    {
        // Properties to hold the active and inactive colors
        2 references
        Color activeColor = new Color(0f, 0.5f, 0.85f, 1f);
        3 references
        Color inactiveColor = new Color(0.5f, 0.5f, 0.5f, 1f);

        3 references
        bool m_IsActive = false;

        1 reference
        public new class UxmlFactory : UxmlFactory<CustomColorButton, UxmlTraits> { }

        // This exposes attributes in the UI Builder
        1 reference
        public new class UxmlTraits : Button.UxmlTraits
        {
            1 reference
            UxmlColorAttributeDescription m_AttrActiveColor =
                new UxmlColorAttributeDescription
                {
                    name = "active-color",
                    defaultValue = new Color(0f, 0.5f, 0.85f, 1f)
                };

            1 reference
            UxmlColorAttributeDescription m_AttrInactiveColor =
                new UxmlColorAttributeDescription
                {
                    name = "inactive-color",
                    defaultValue = new Color(0.5f, 0.5f, 0.5f, 1f)
                };
```

# CustomControl → C# - USS transition

```
0 references
public CustomColorButton()
{
    this.style.minWidth = 100;
    this.style.minHeight = 100;

    //// Optional: this shows the syntax for setting up a basic USS transition using the C# syntax
    //// More information: https://docs.unity3d.com/Manual/UIE-Transitions.html

    // Omitted for simplicitiy. Uncomment this block to add some "built-in" USS Transitions:


    // TransitionDuration needs a List of TimeValues

    List<TimeValue> durations = new List<TimeValue>();
    durations.Add(new TimeValue(0.5f, TimeUnit.Second));
    this.style.transitionDuration = new StyleList<TimeValue>(durations);

    // easingFunctions also needs a List

    List<EasingFunction> easingFunctions = new List<EasingFunction>();
    easingFunctions.Add(new EasingFunction(EasingMode.EaseInOut));

    this.style.transitionTimingFunction = new StyleList<EasingFunction>(easingFunctions);


    // Use the Clickable Manipulator to toggle between active and inactive color.
    // The clicked property is a shorthand way to subscribe to click events (versus RegisterCallback).
    this.clicked += OnClick;

}

// Note: CustomColorButton instance is tightly bound to its OnClick handler; when the button is destroyed, the OnClick handler will be
// be garbage collected alongside the button.
1 reference
private void OnClick()
{
    m_IsActive = !m_IsActive;
    this.style.backgroundColor = m_IsActive ? activeColor : inactiveColor;
}
}
}
```

# Manipulator → Dragger

```
21      public SimpleDragManipulator()
22      {
23          // This filter determines what condition starts the Manipulator (Left Mouse Button down)
24          activators.Add(new ManipulatorActivationFilter { button = MouseButton.LeftMouse });
25      }
26
27      // Event subscriptions
        0 references
28      protected override void RegisterCallbacksOnTarget()
29      {
30          target.RegisterCallback<MouseDownEvent>(OnMouseDown);
31          target.RegisterCallback<MouseMoveEvent>(OnMouseMove);
32          target.RegisterCallback<MouseUpEvent>(OnMouseUp);
33      }
34
35      // Event unsubscriptions
        0 references
36      protected override void UnregisterCallbacksFromTarget()
37      {
38          target.UnregisterCallback<MouseDownEvent>(OnMouseDown);
39          target.UnregisterCallback<MouseMoveEvent>(OnMouseMove);
40          target.UnregisterCallback<MouseUpEvent>(OnMouseUp);
41      }
42
43      // Check if we can click and drag an element and then initialize some values
        2 references
44      private void OnMouseDown(MouseDownEvent evt)
45      {
46          // Checks whether MouseEvent satisfies all of the ManipulatorActivationFilter requirements.
47          if (CanStartManipulation(evt))
48          {
49              // Save the mouse and element start positions
50              m_StartMousePosition = evt.mousePosition;
51              m_StartElementPosition = new Vector2(target.layout.x, target.layout.y);
52
53              // Flag that this is active and receive all mouse events, even if the mouse pointer leaves
54              m_IsDragging = true;
55              target.CaptureMouse();
56
57              // Limit the event to this element, do not send up or down the hierarchy
58              evt.StopPropagation();
59          }
60      }
```

# Manipulator → Dragger

```
61
62      // Offset the dragged element based on the difference from the start position
        2 references
63      private void OnMouseMove(MouseMoveEvent evt)
64      {
65          // Checks whether the MouseEvent is related to this Manipulator and dragging is active
66          if (CanStopManipulation(evt) && m_IsDragging)
67          {
68              // Use the difference in mouse position to offset the element as well
69              Vector3 mouseDelta = evt.mousePosition - m_StartMousePosition;
70
71              // Convert the pixel offset into a new left/top StyleLength
72              target.style.left = CreatePixelLength(m_StartElementPosition.x + mouseDelta.x);
73              target.style.top = CreatePixelLength(m_StartElementPosition.y + mouseDelta.y);
74
75              // Limit the event to this element, do not send up or down the hierarchy
76              evt.StopPropagation();
77          }
78      }
79
80      // Creates a new StyleLength representing a length in pixels.
        2 references
81      private StyleLength CreatePixelLength(float value)
82      {
83          return new StyleLength(new Length(value, LengthUnit.Pixel));
84      }
```

# Campus Virtual → Documentation

## QuizU documentation

Documentation for the QuizU - an official Unity sample demonstrating MVP, state pattern, managing menu screens and much more using UI Toolkit available on the Unity Asset Store.

Version 1.01 Nov 1st 2023

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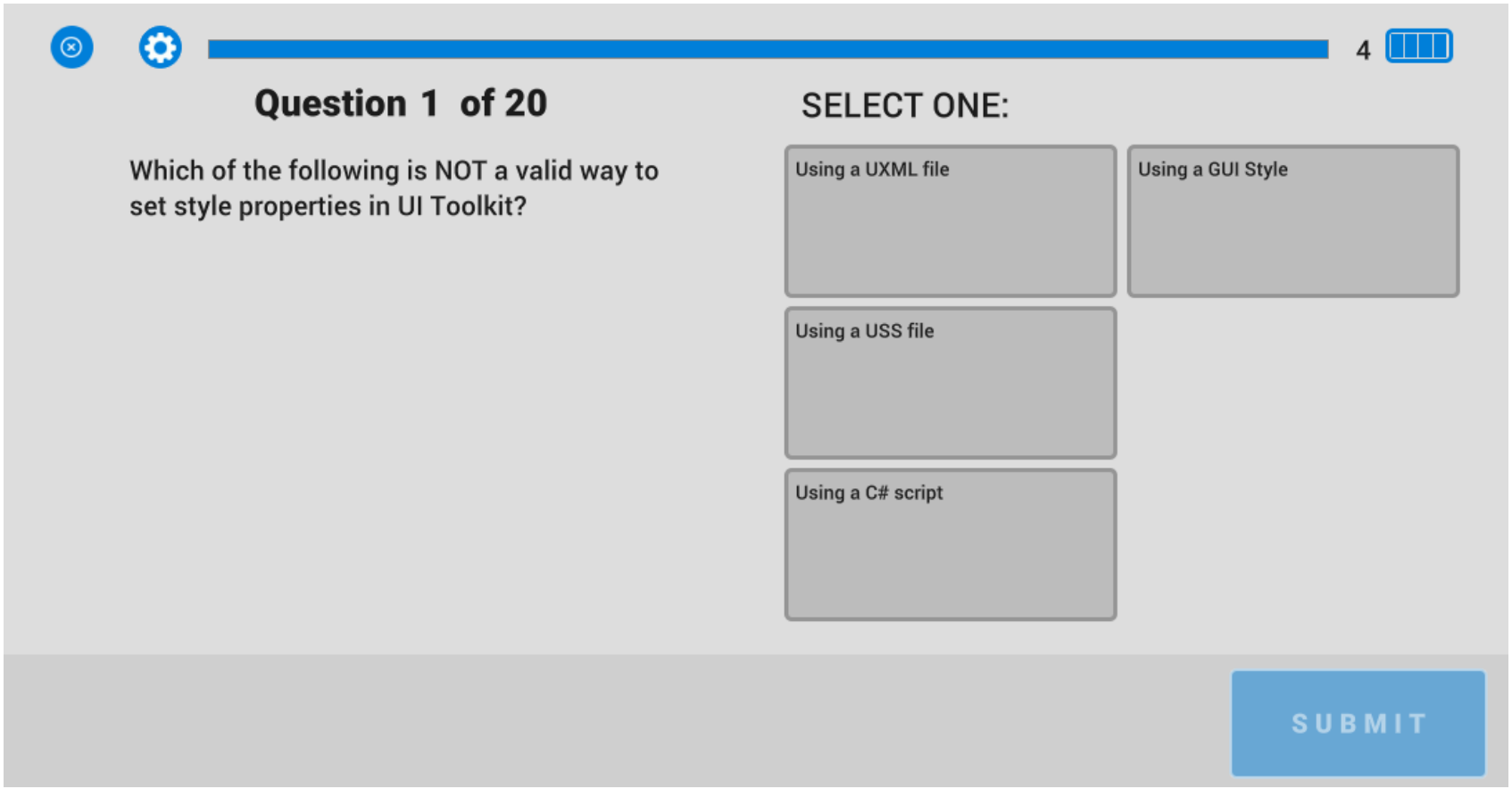
# Quiz → UI Toolkit



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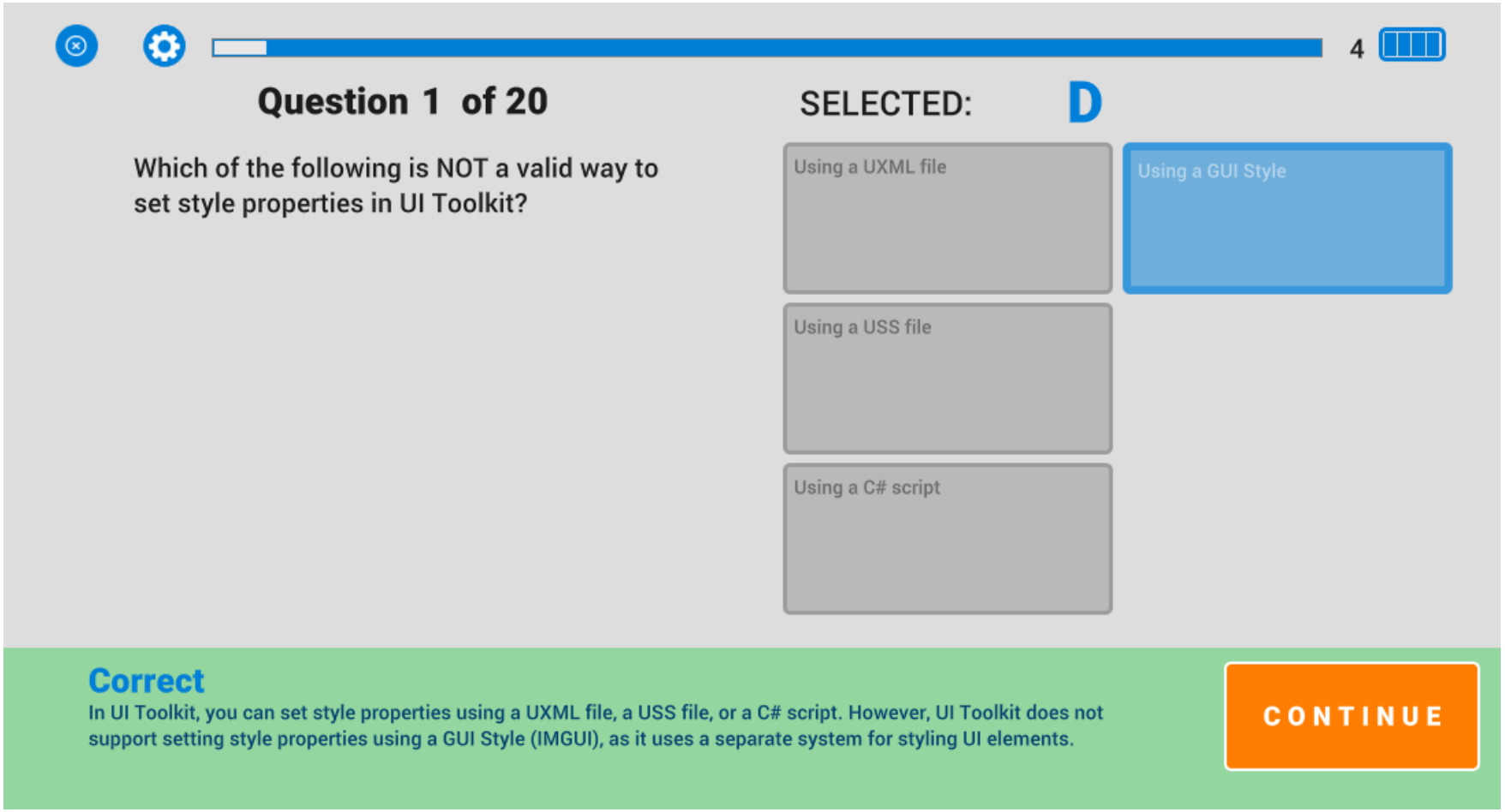

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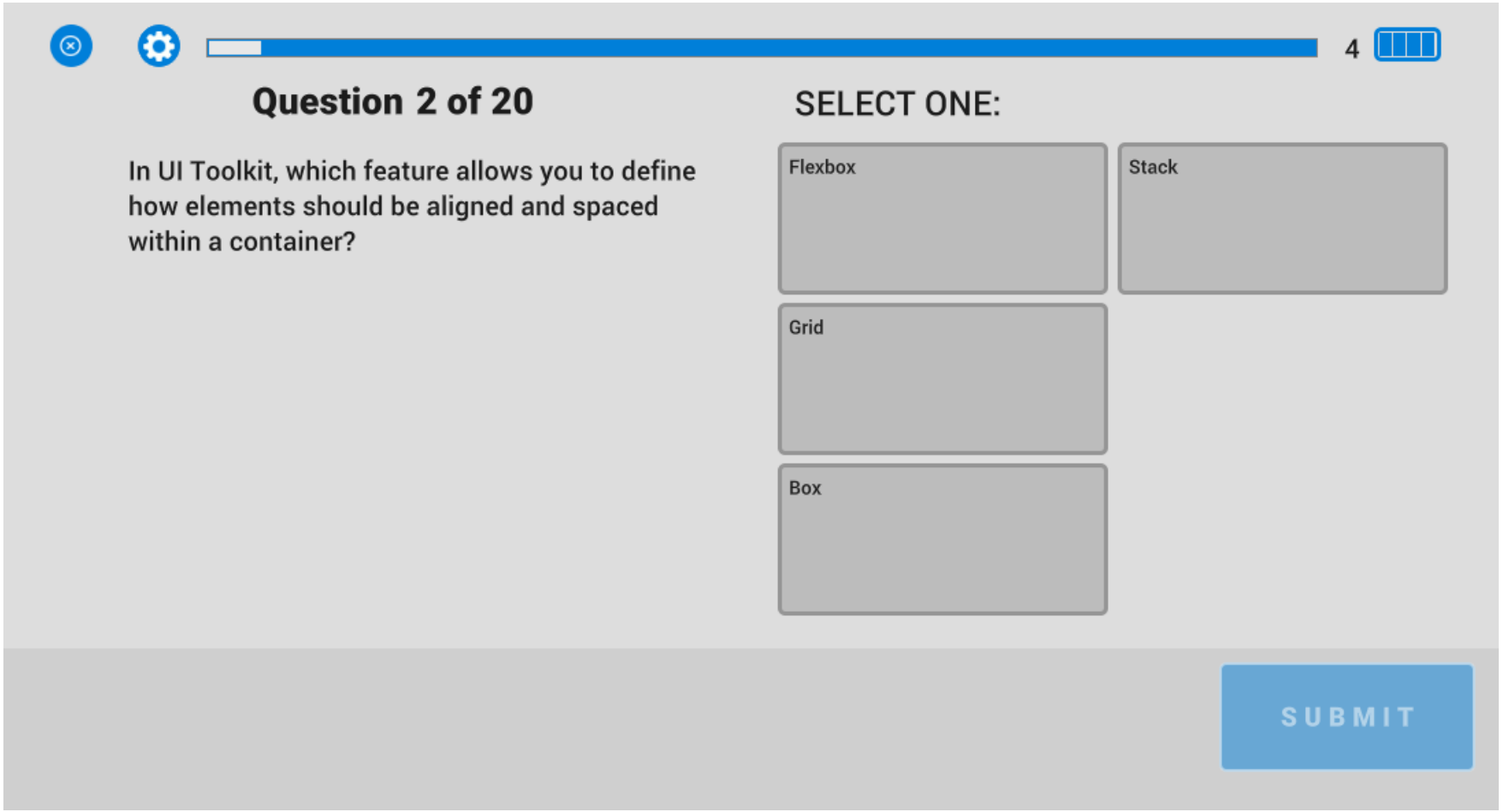

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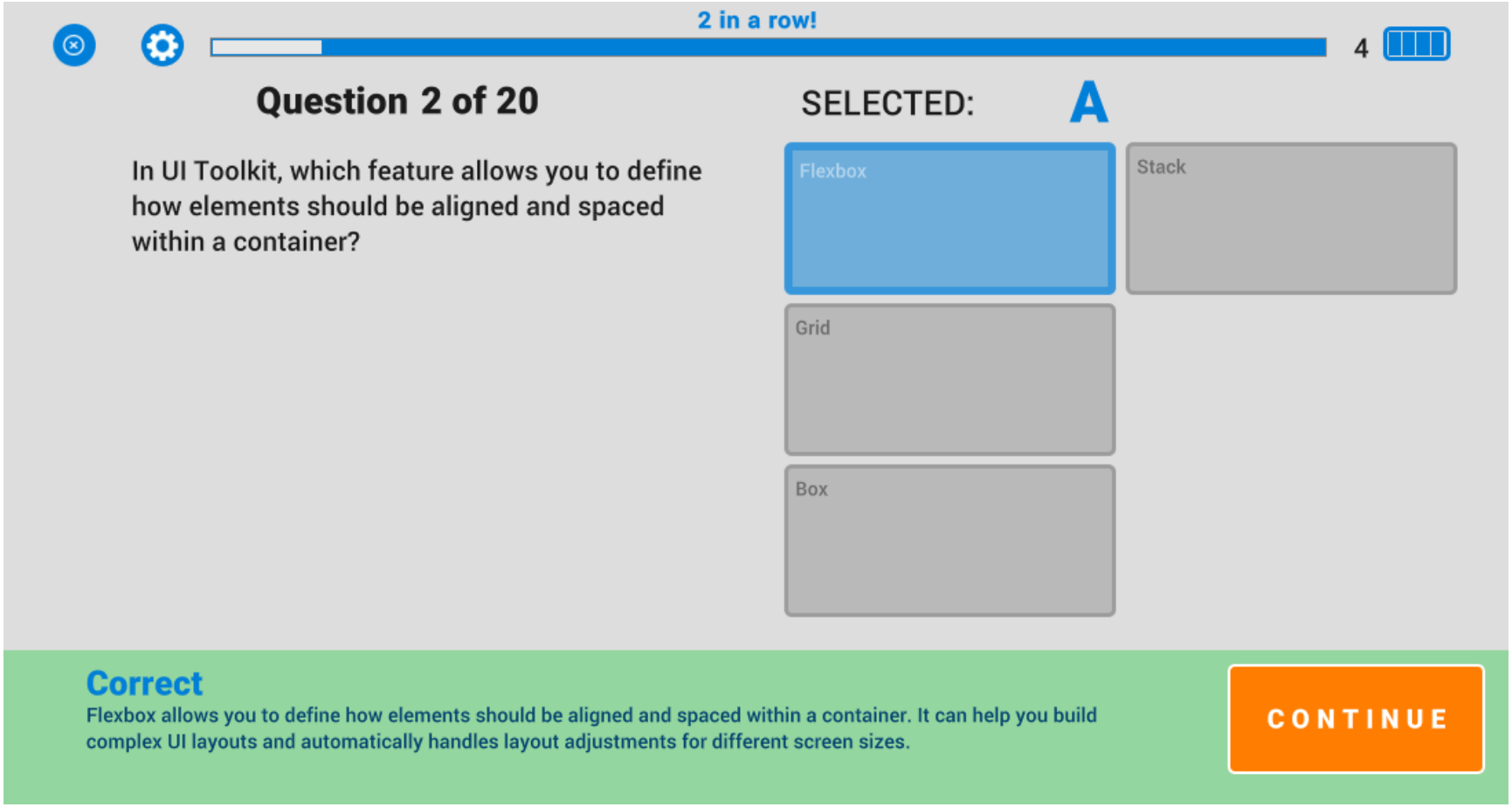

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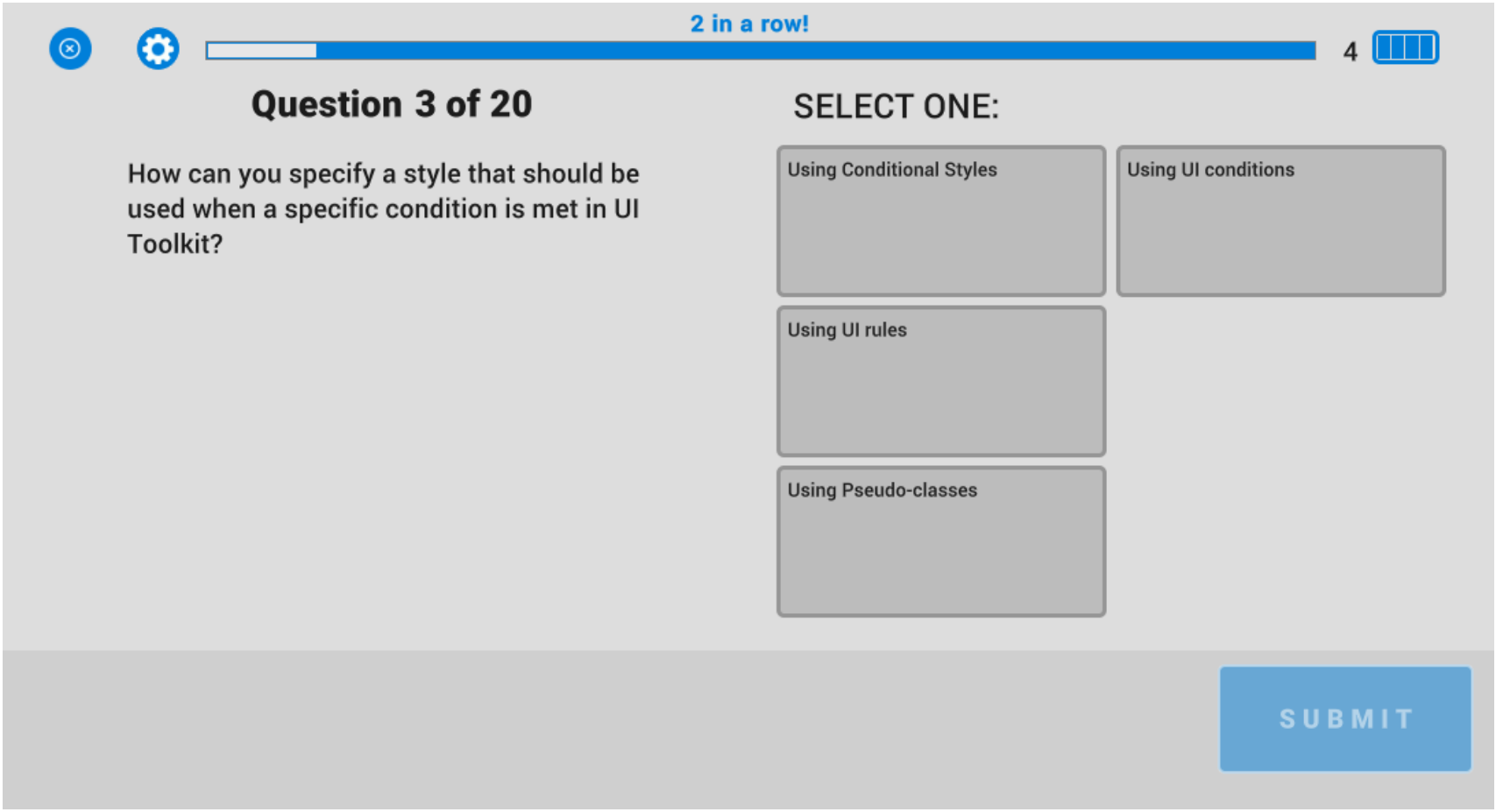
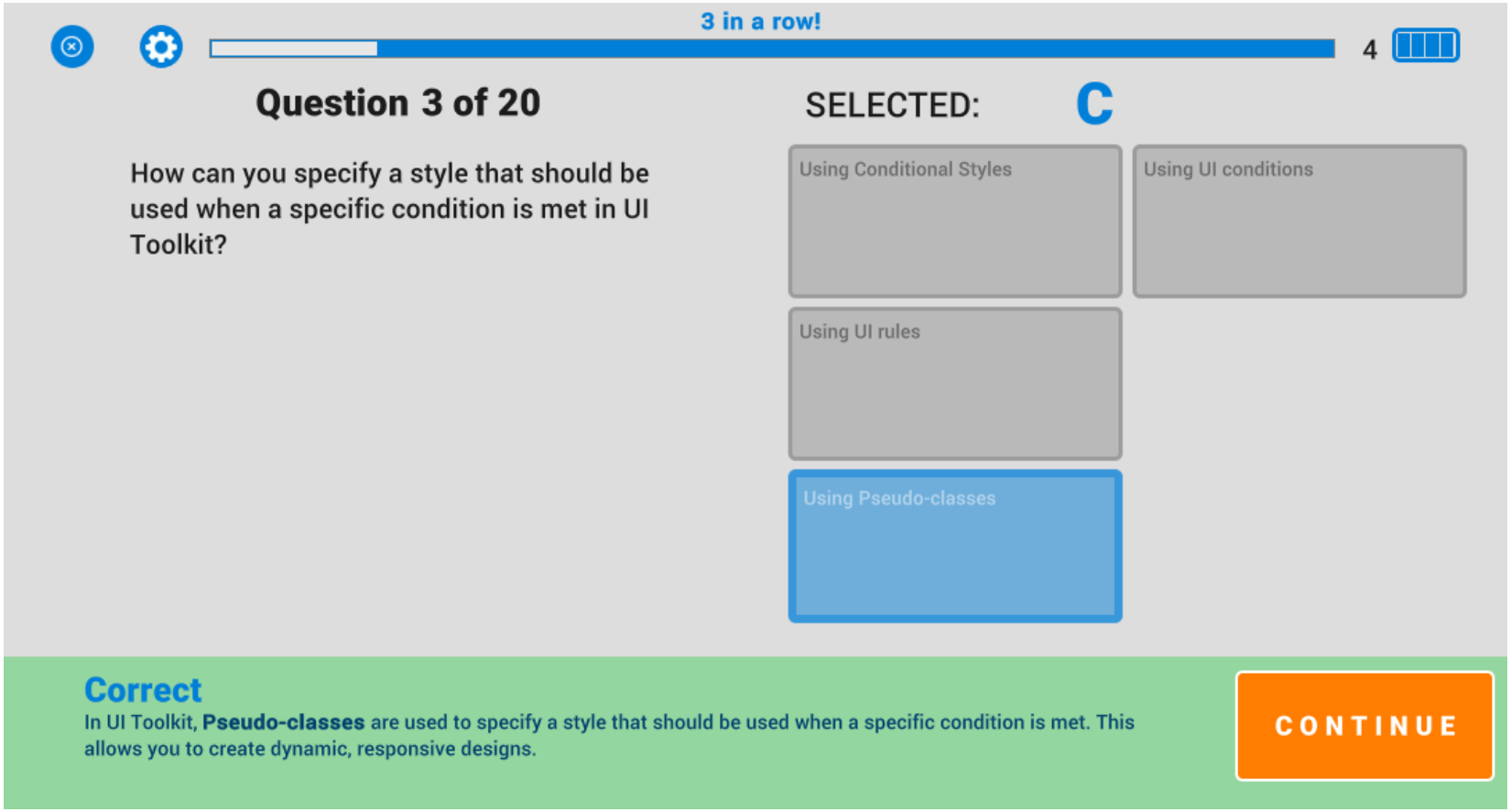


# Quiz → UI Toolkit



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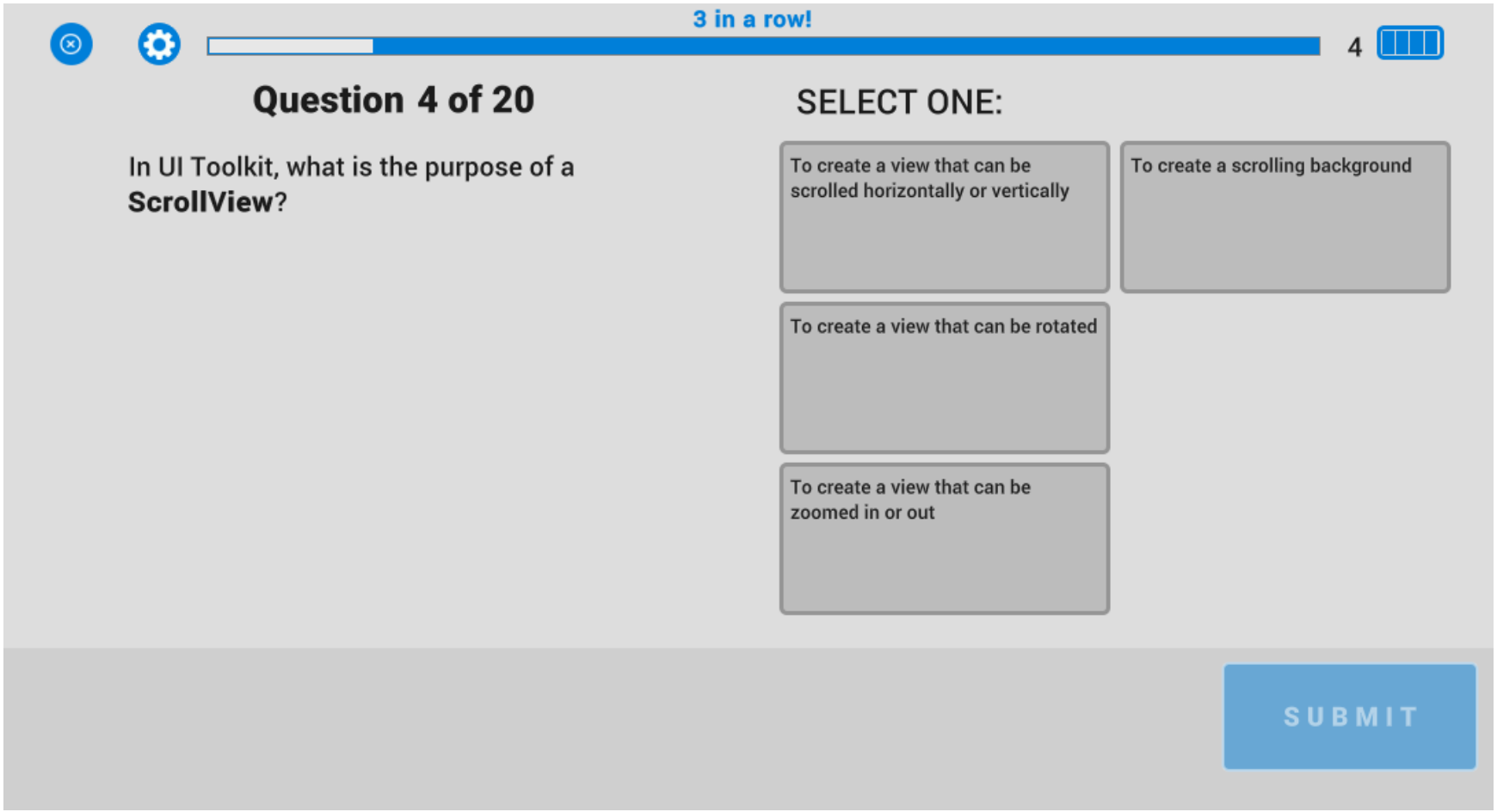

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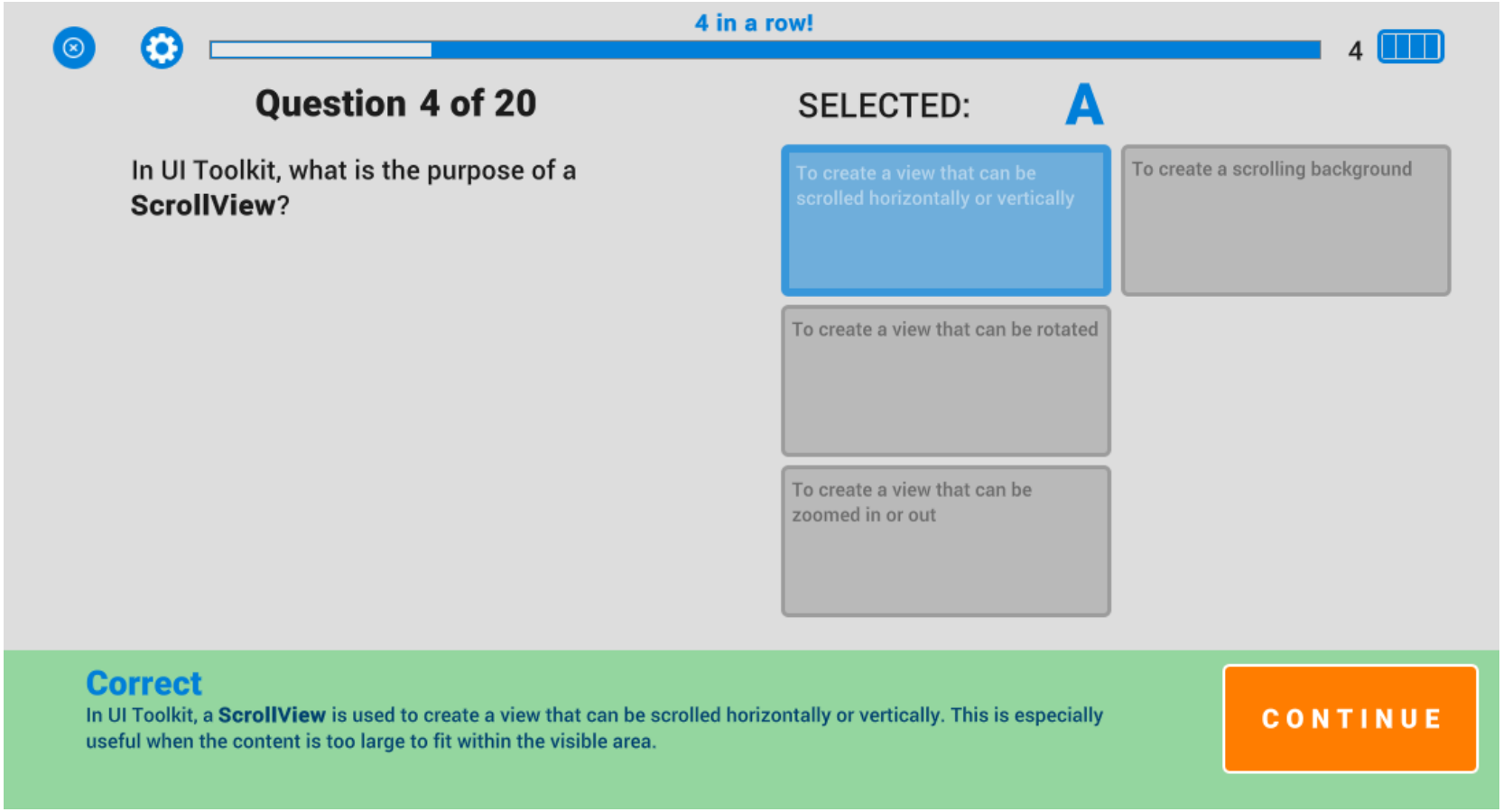

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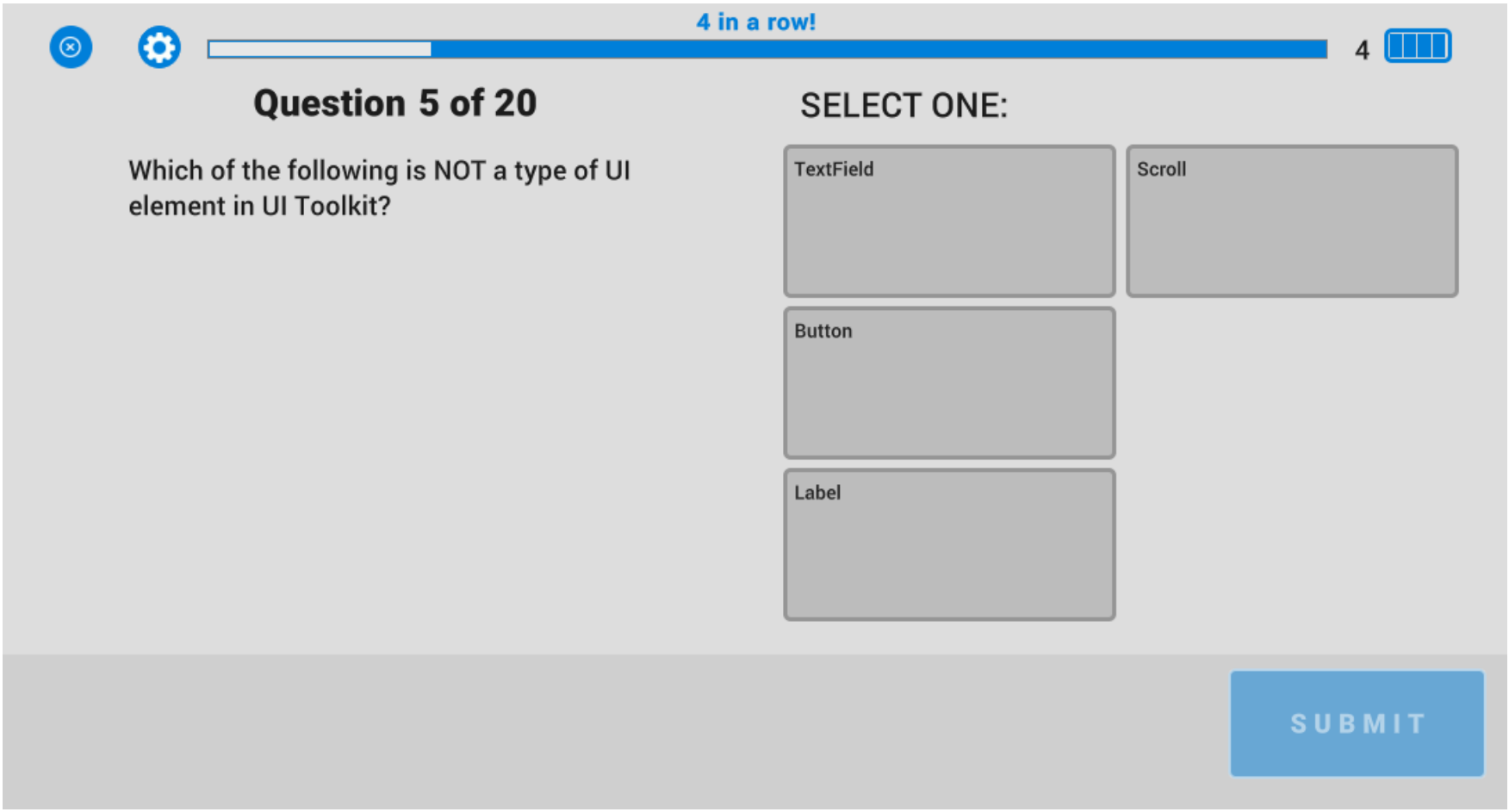

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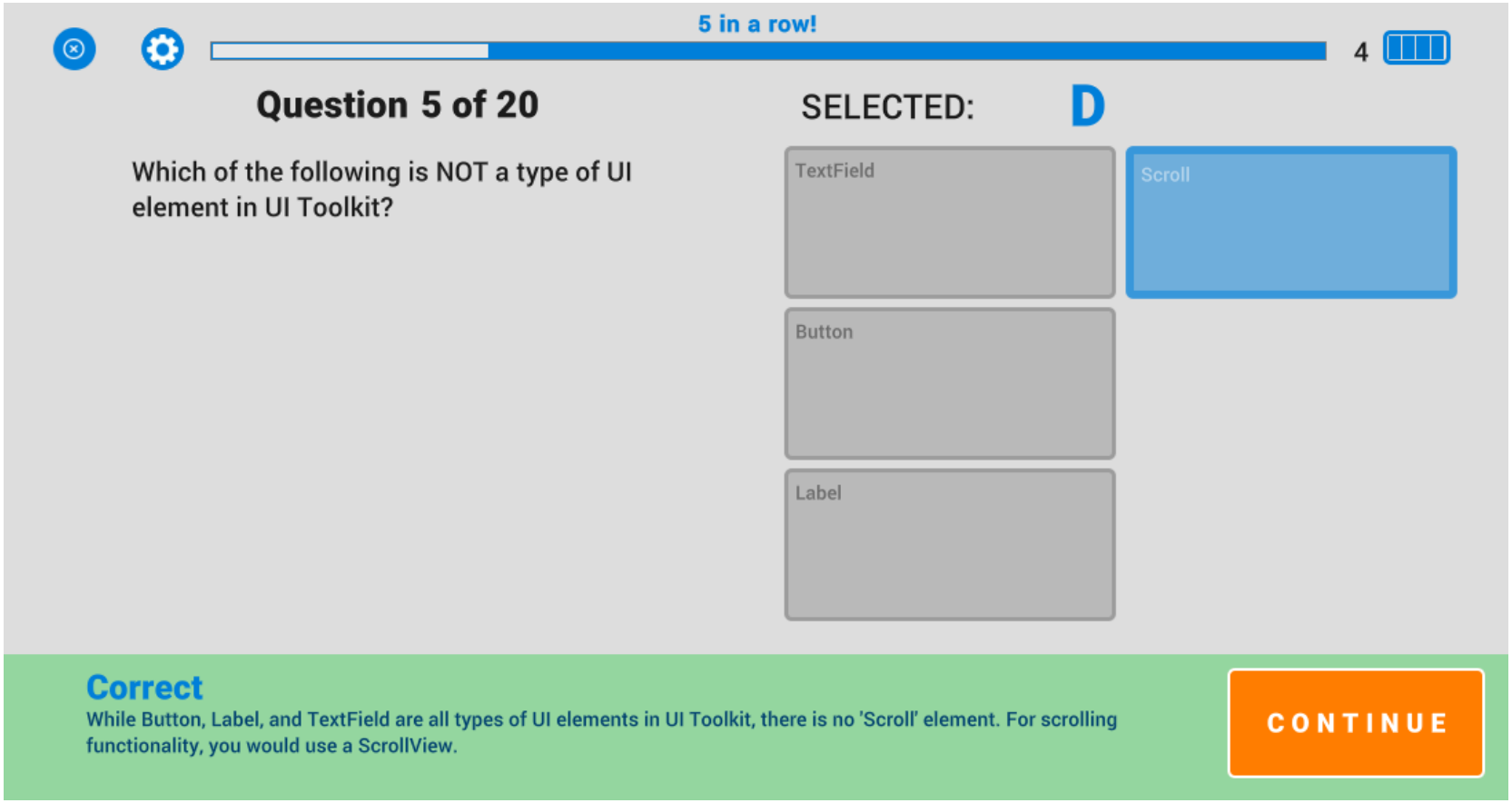

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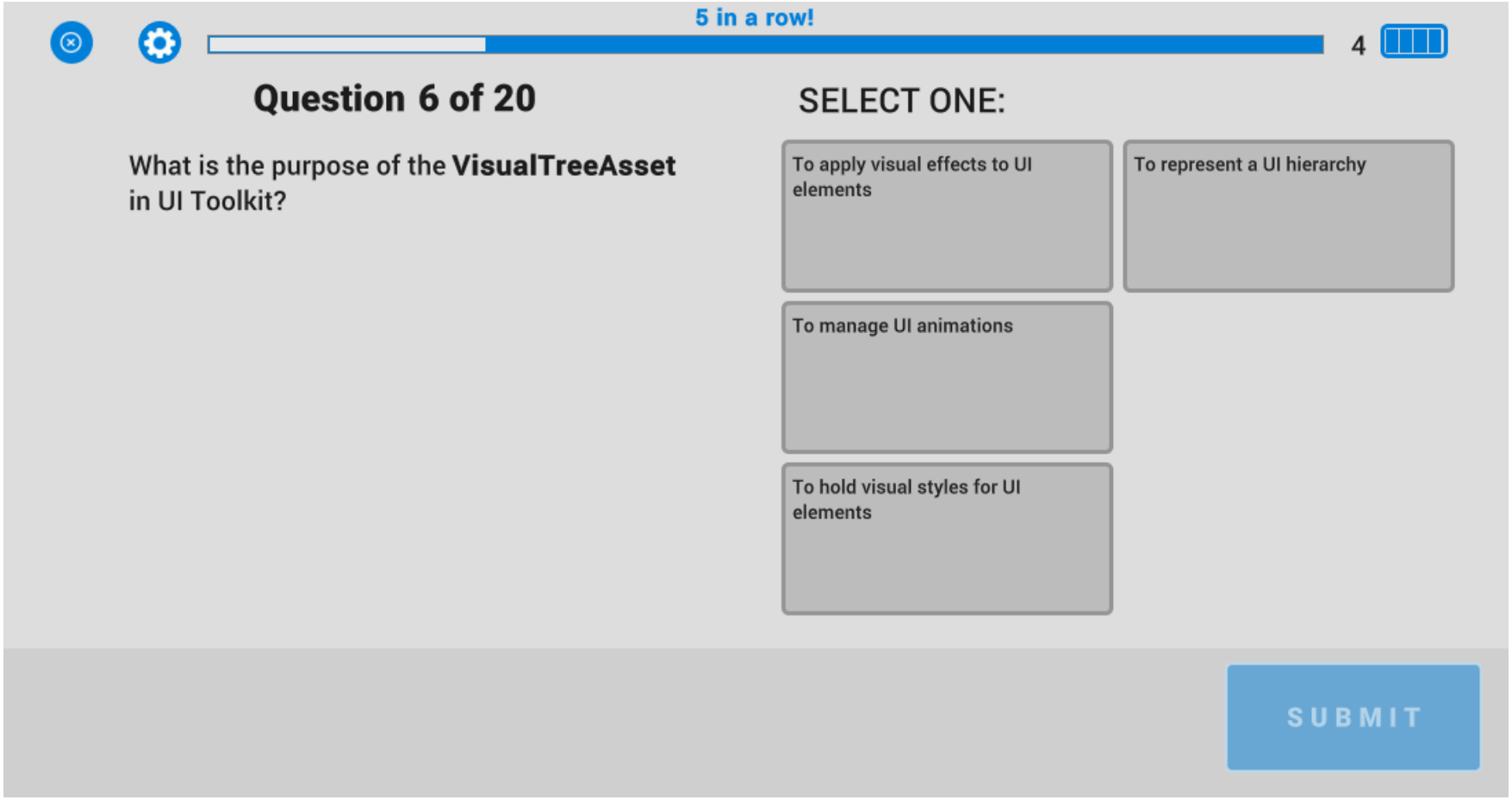

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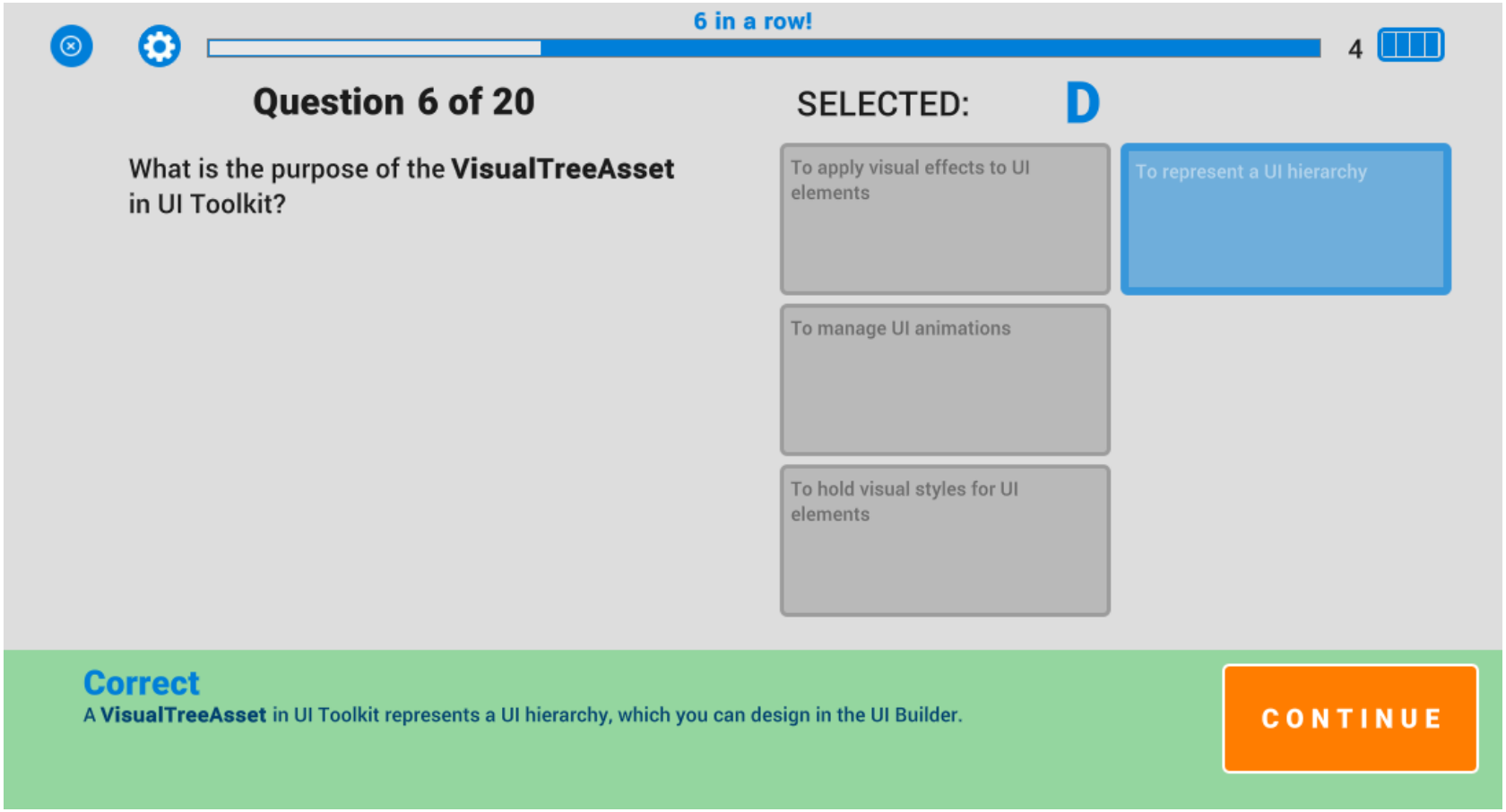

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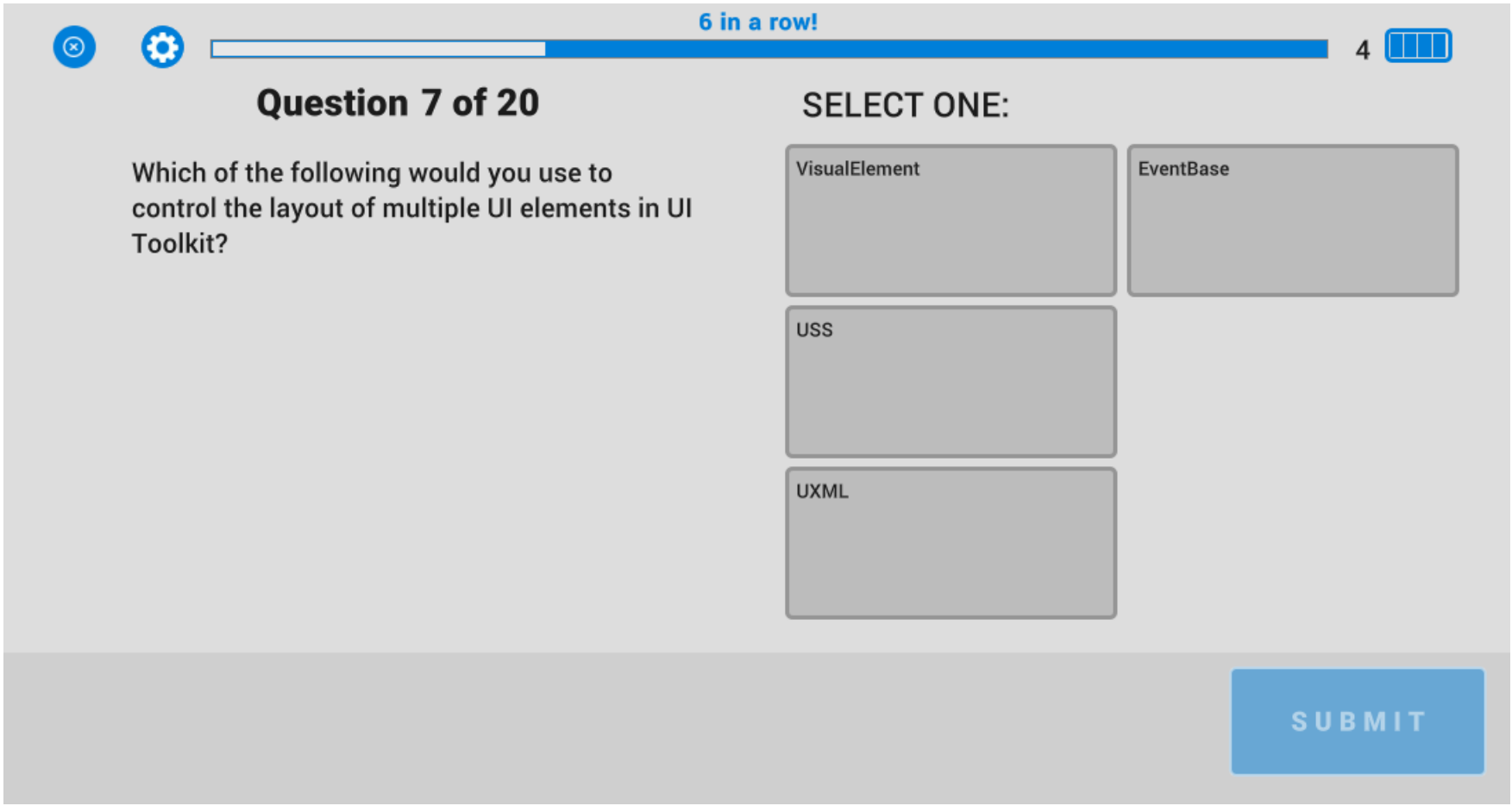

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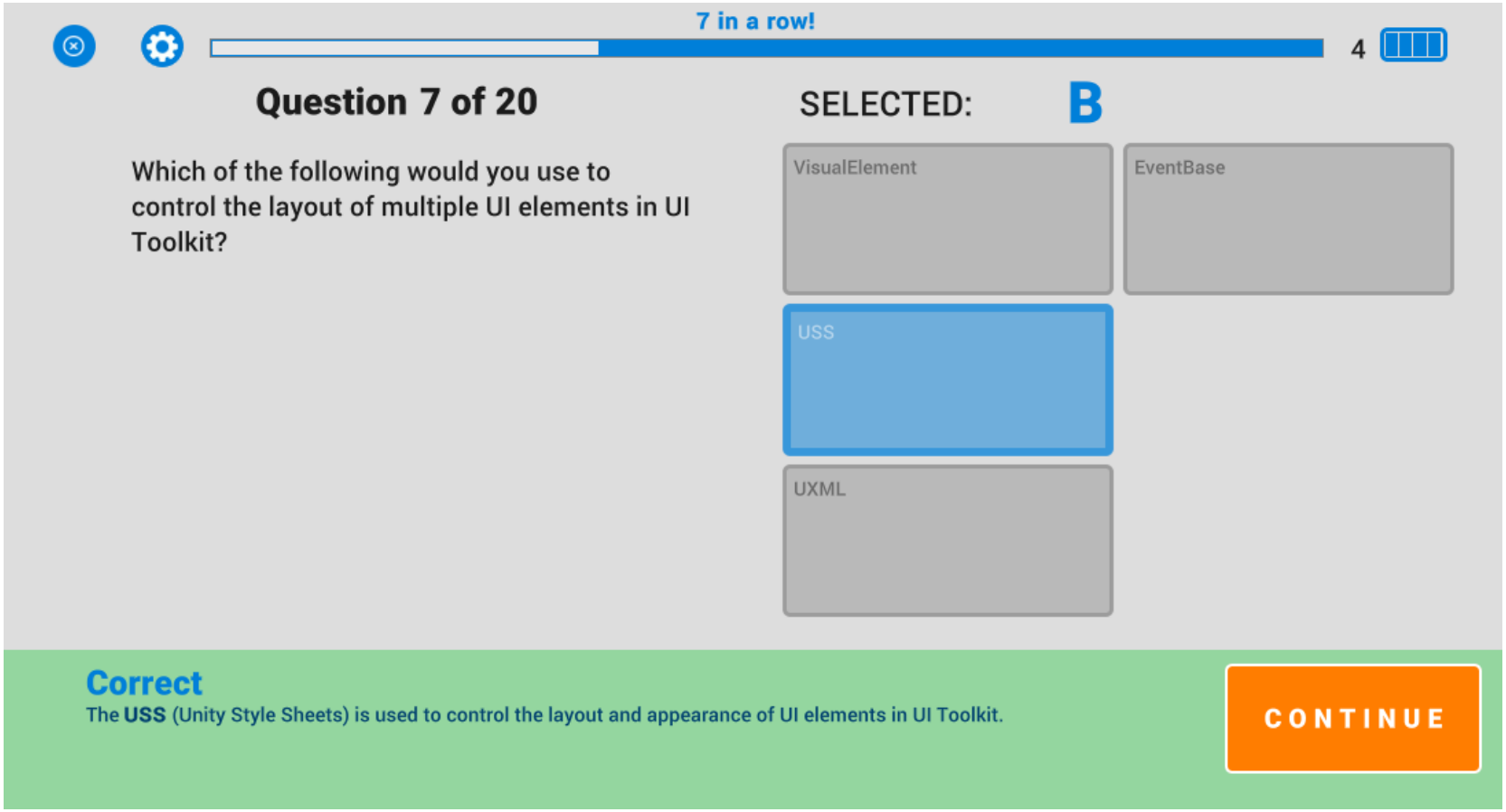

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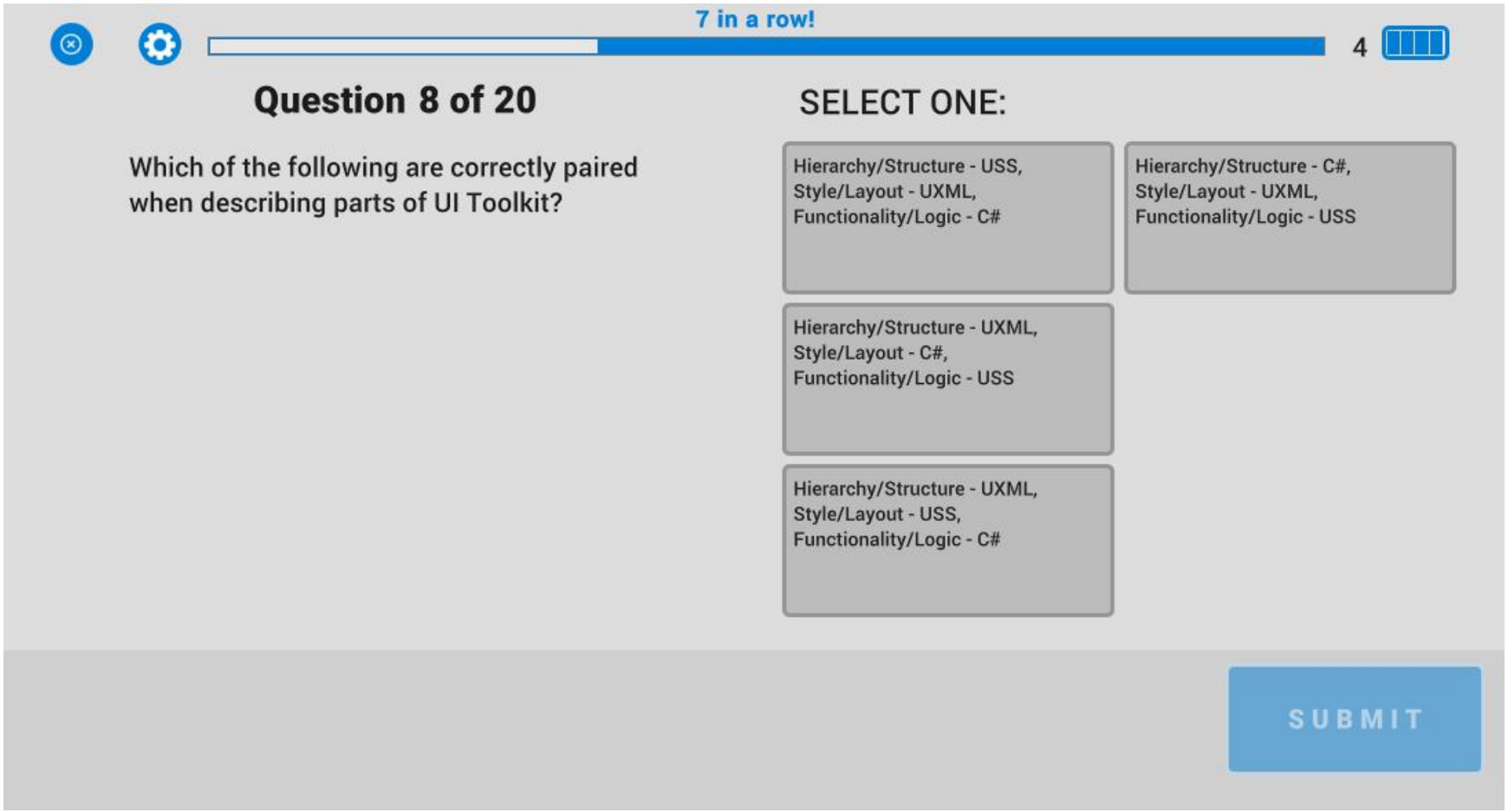

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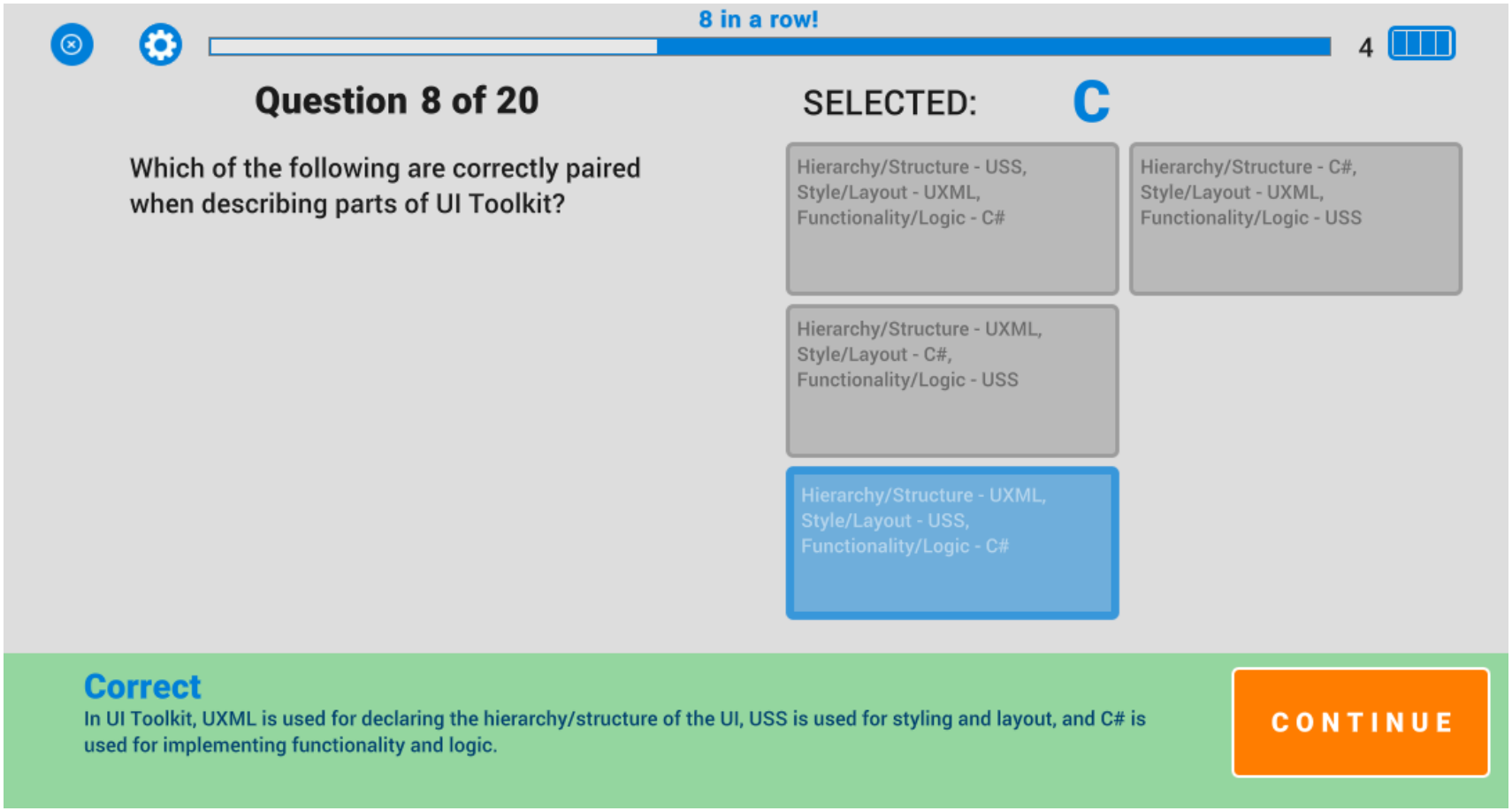

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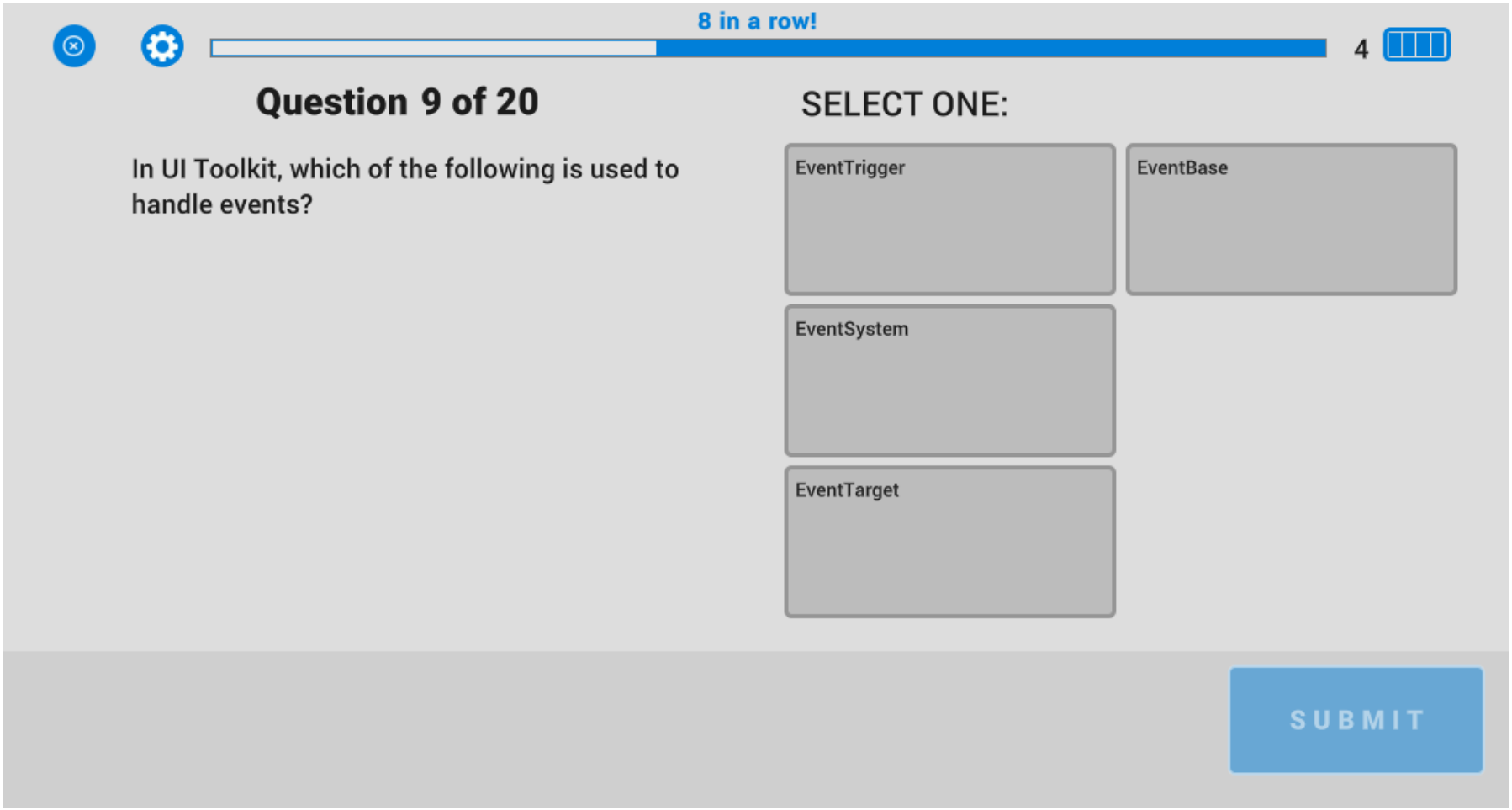

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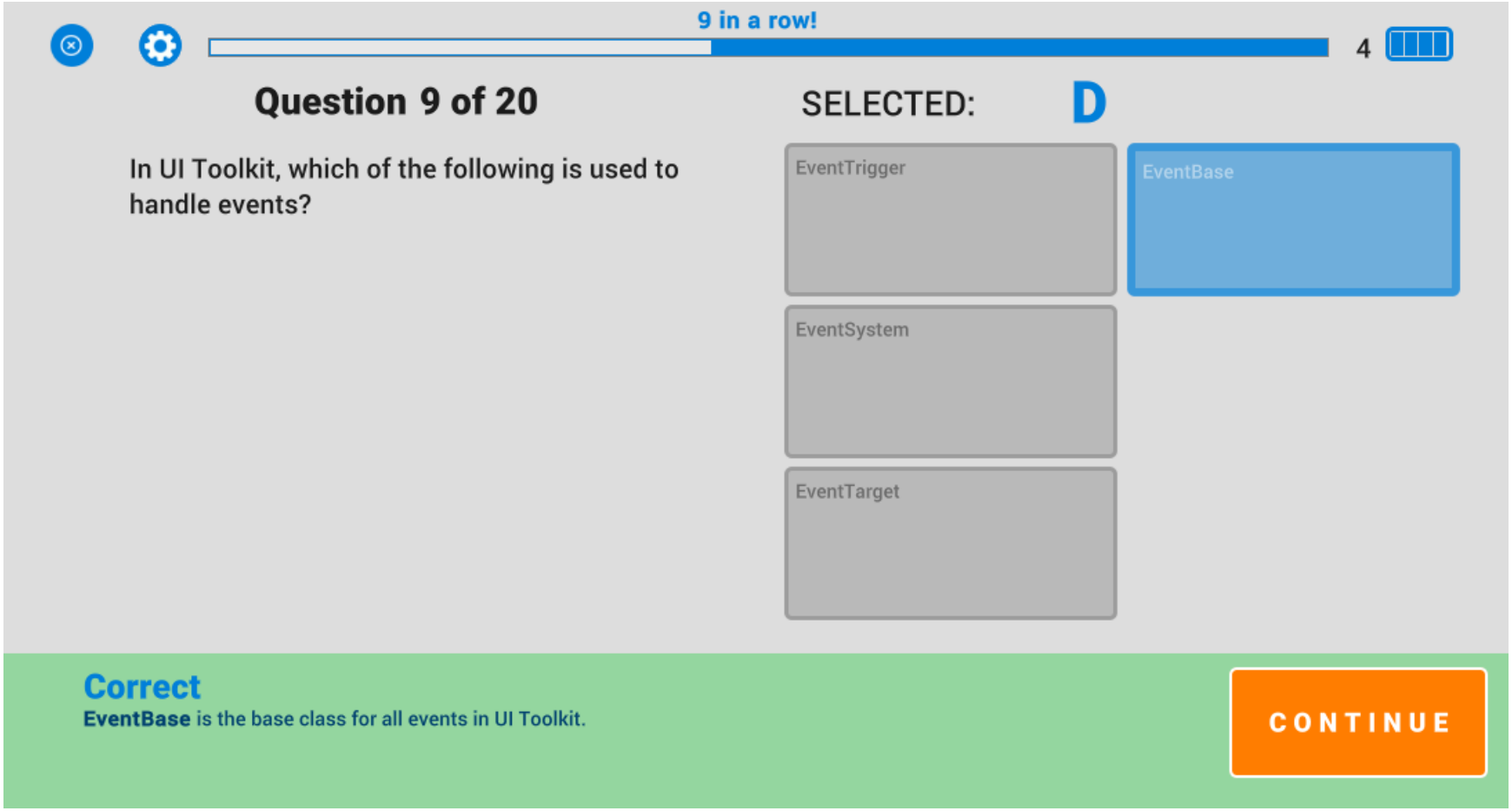

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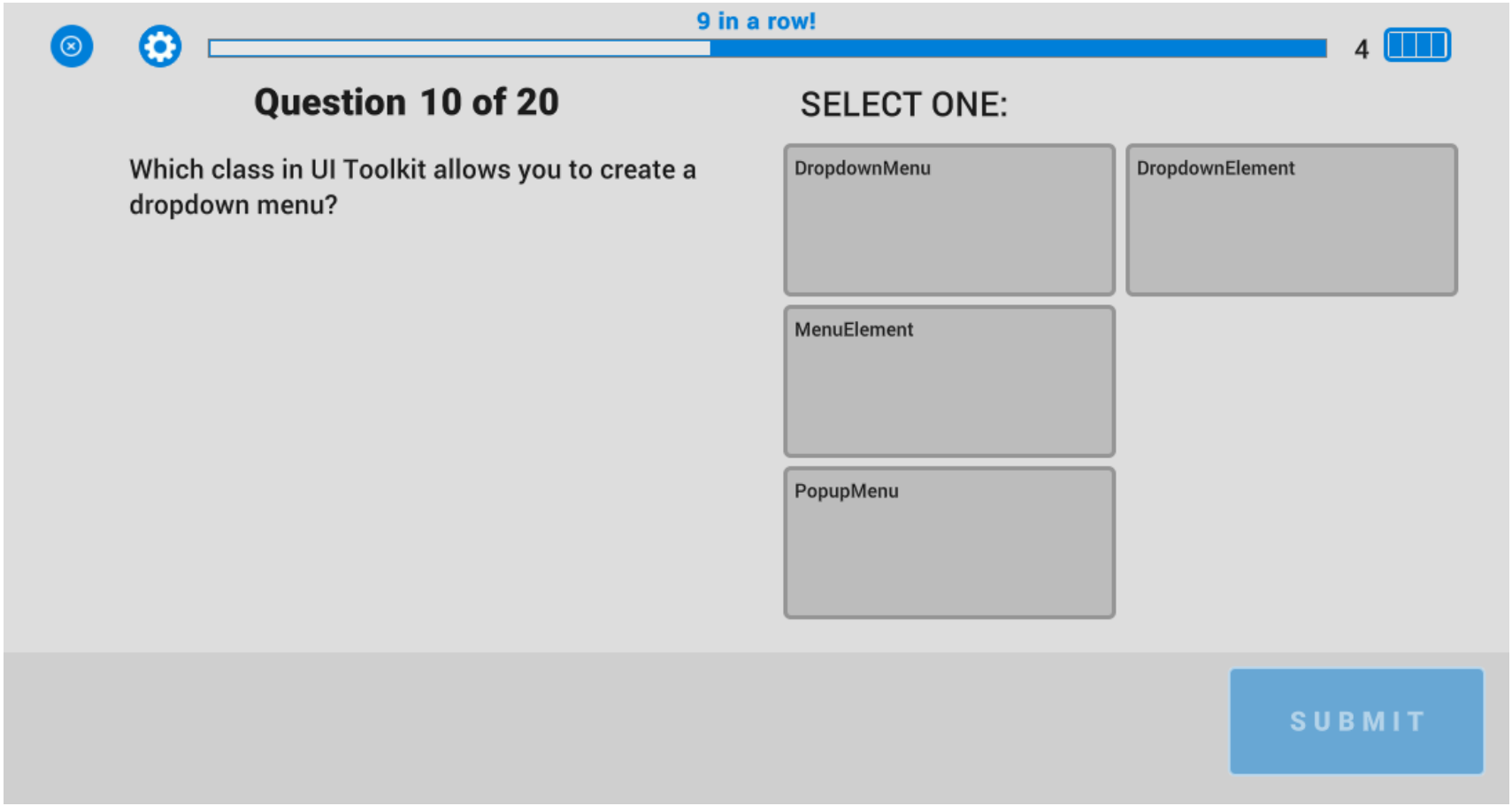

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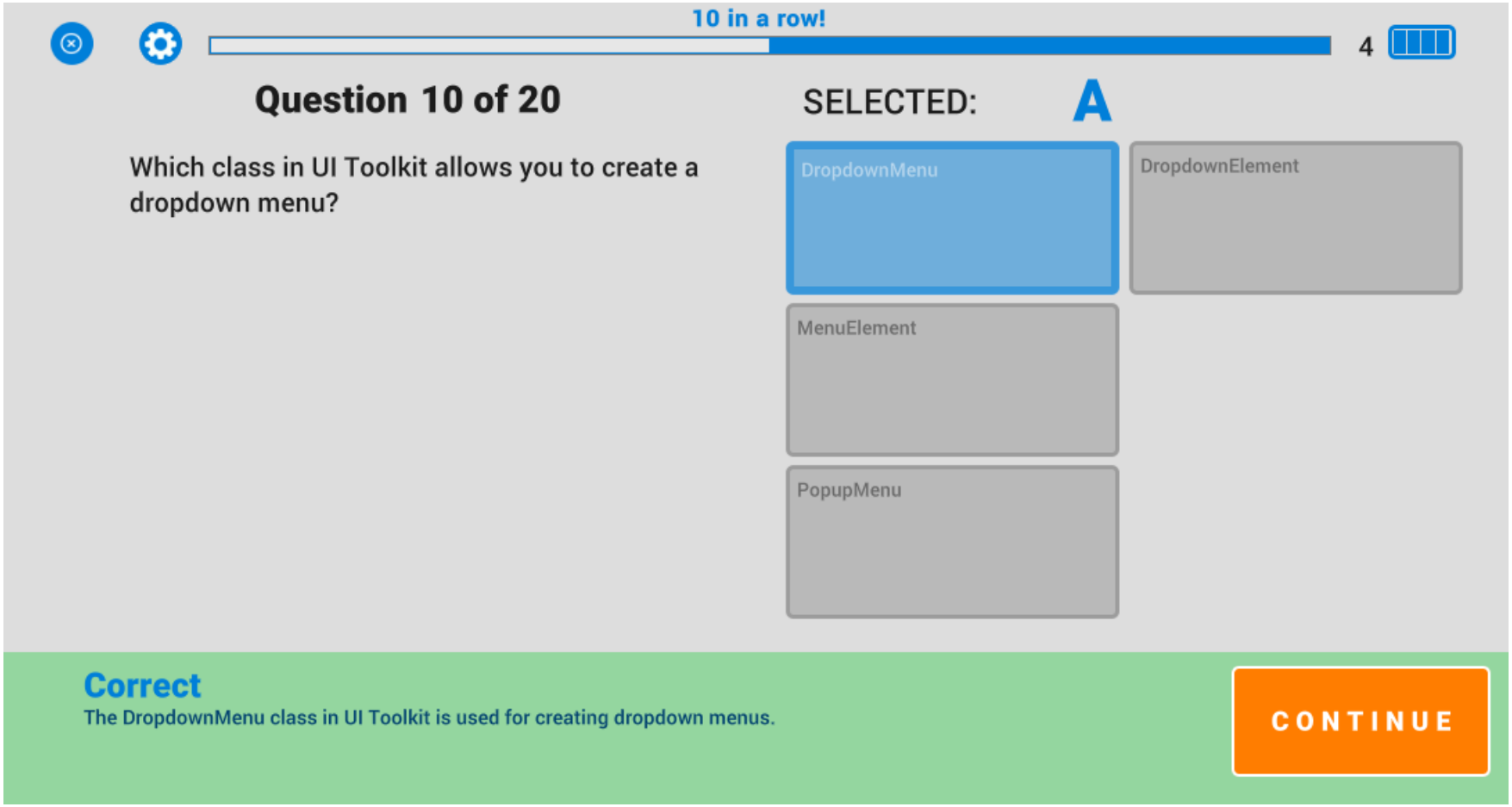

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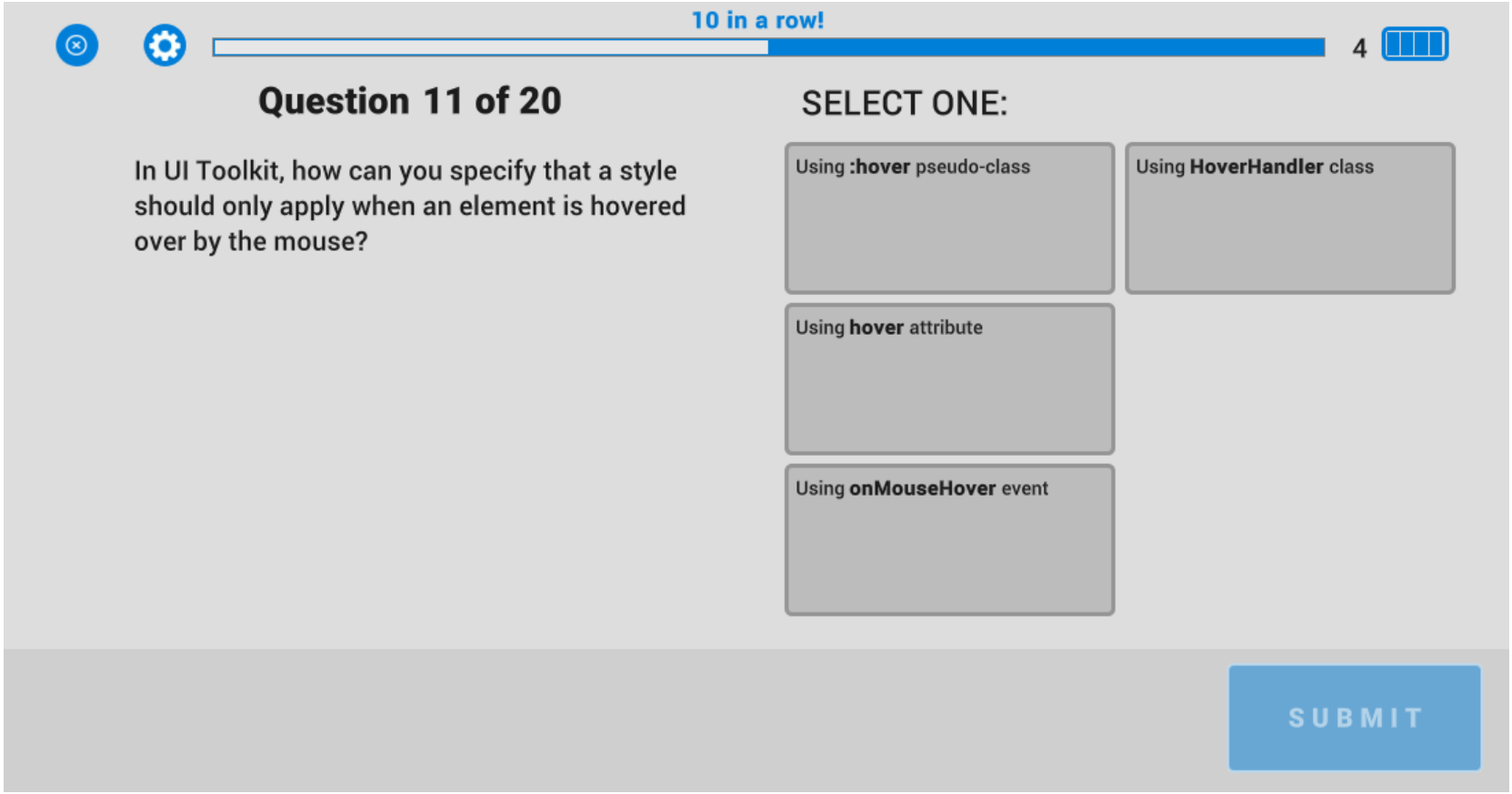

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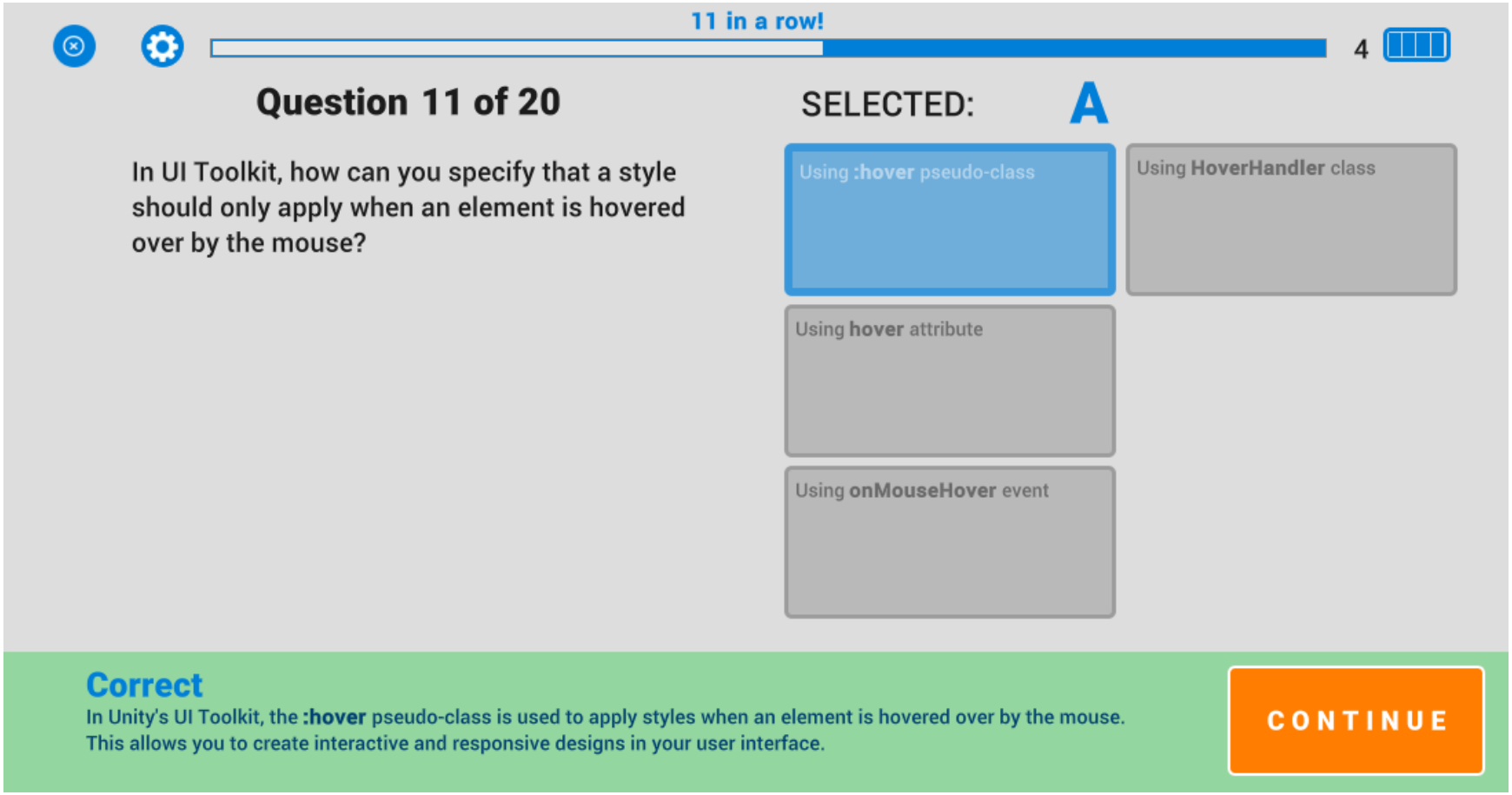

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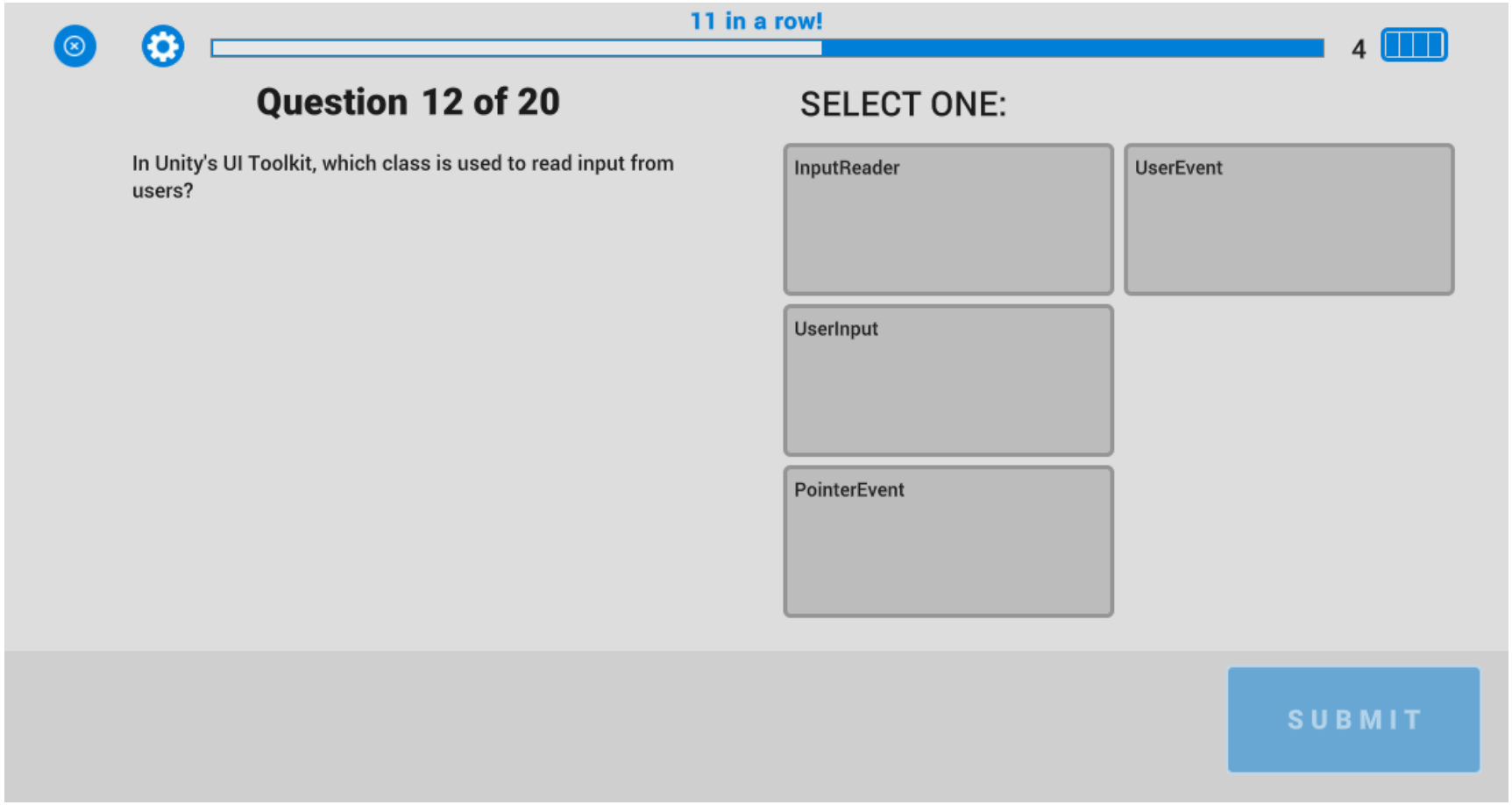

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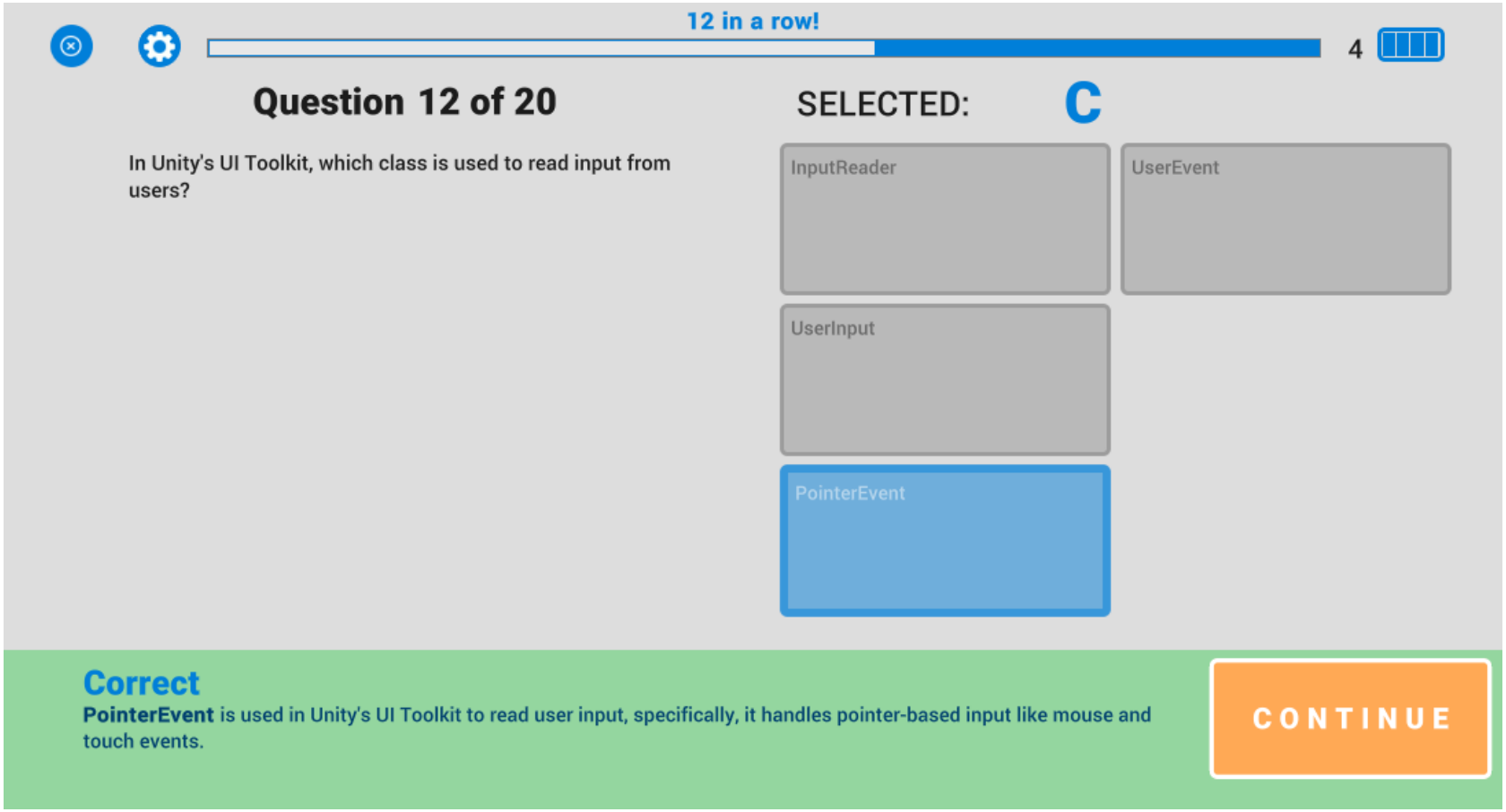

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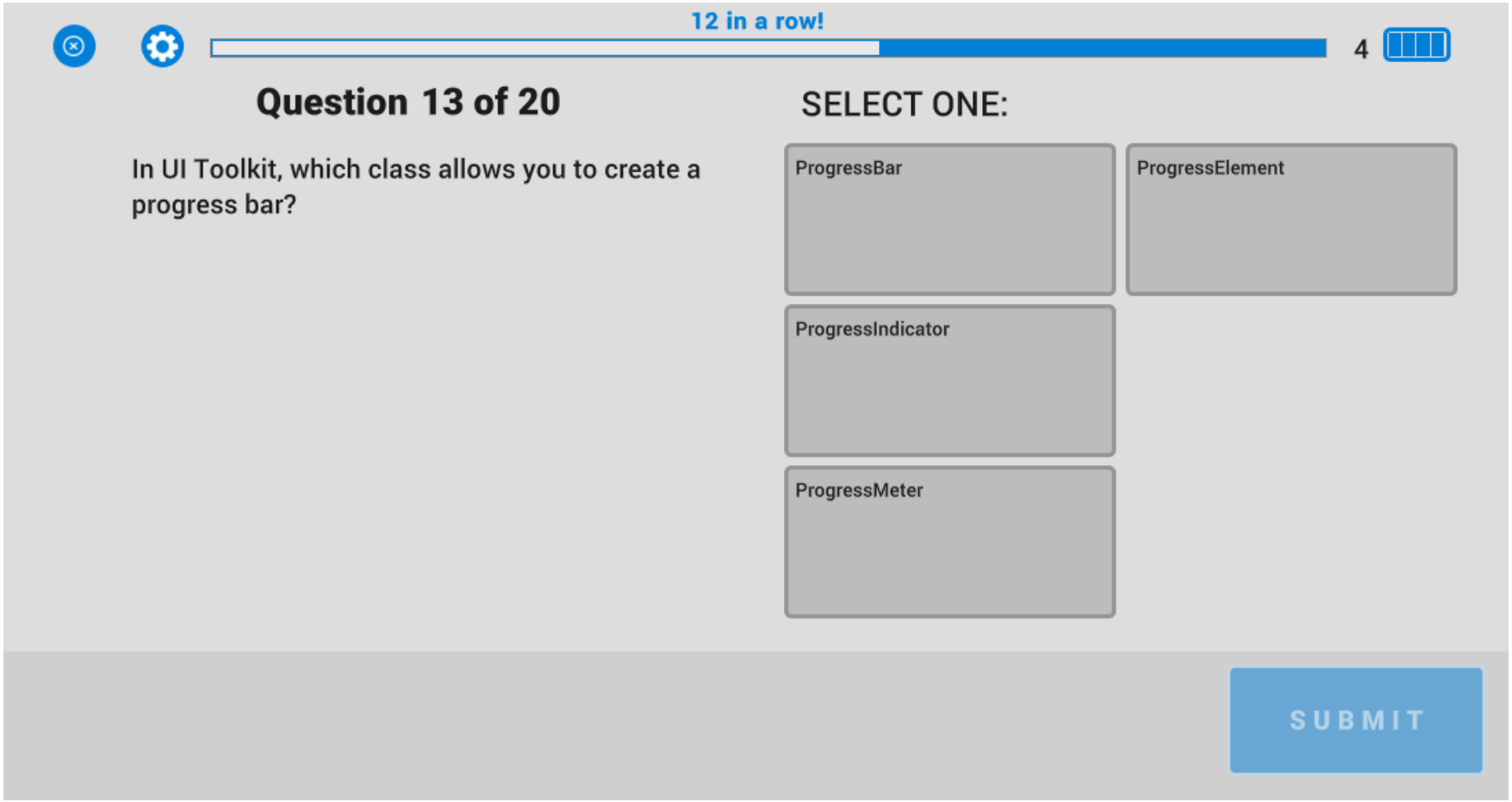

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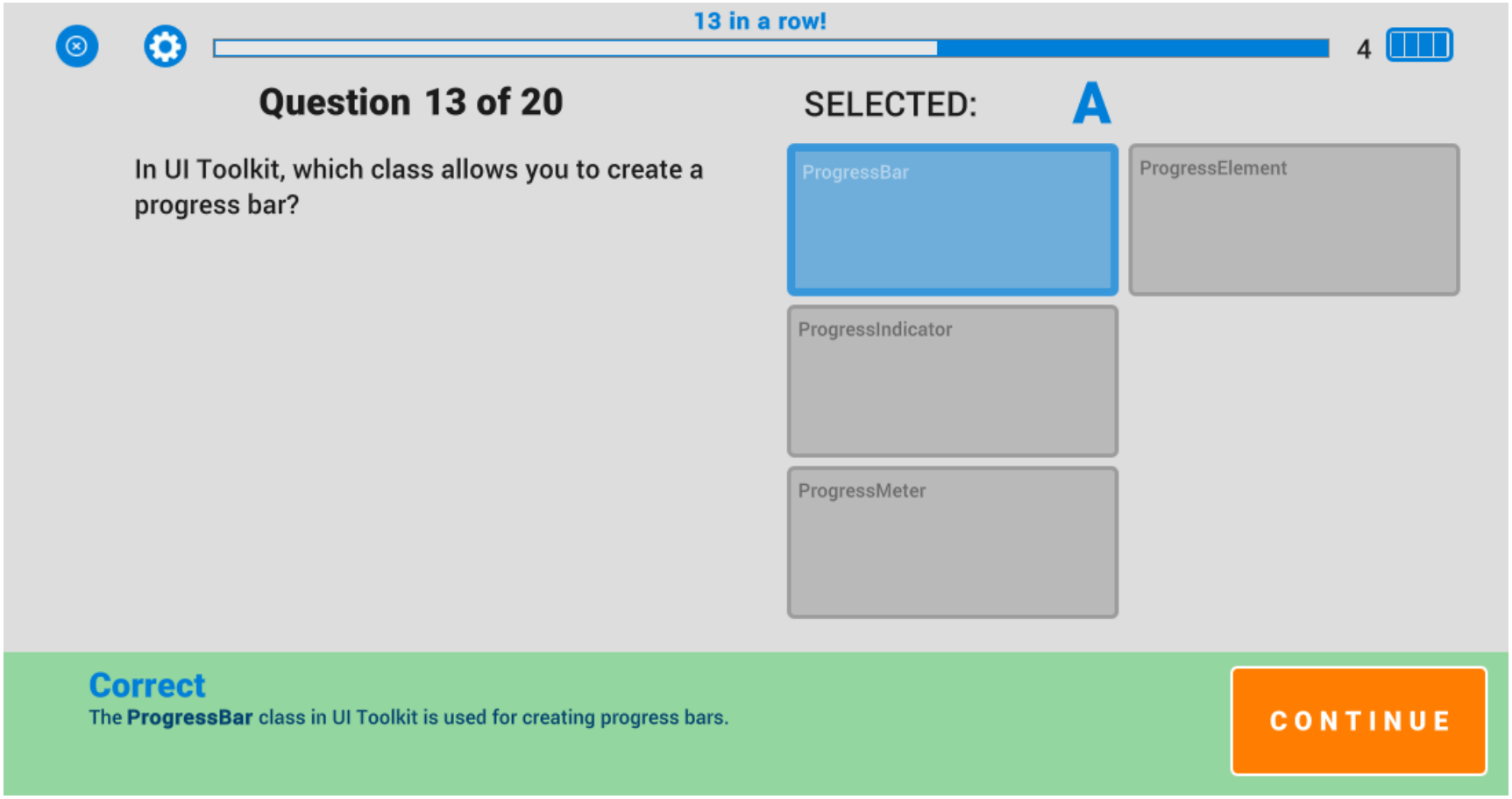

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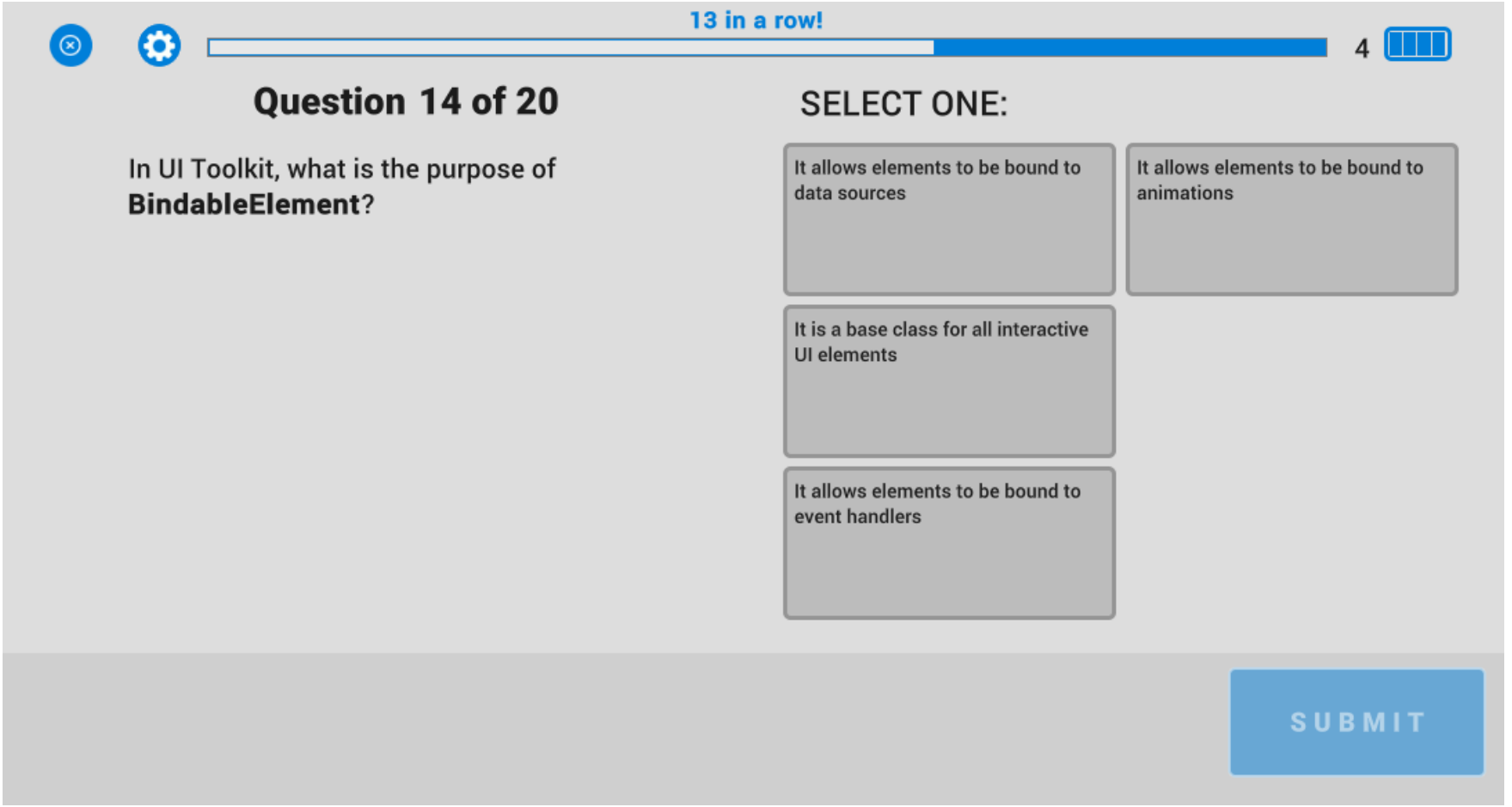

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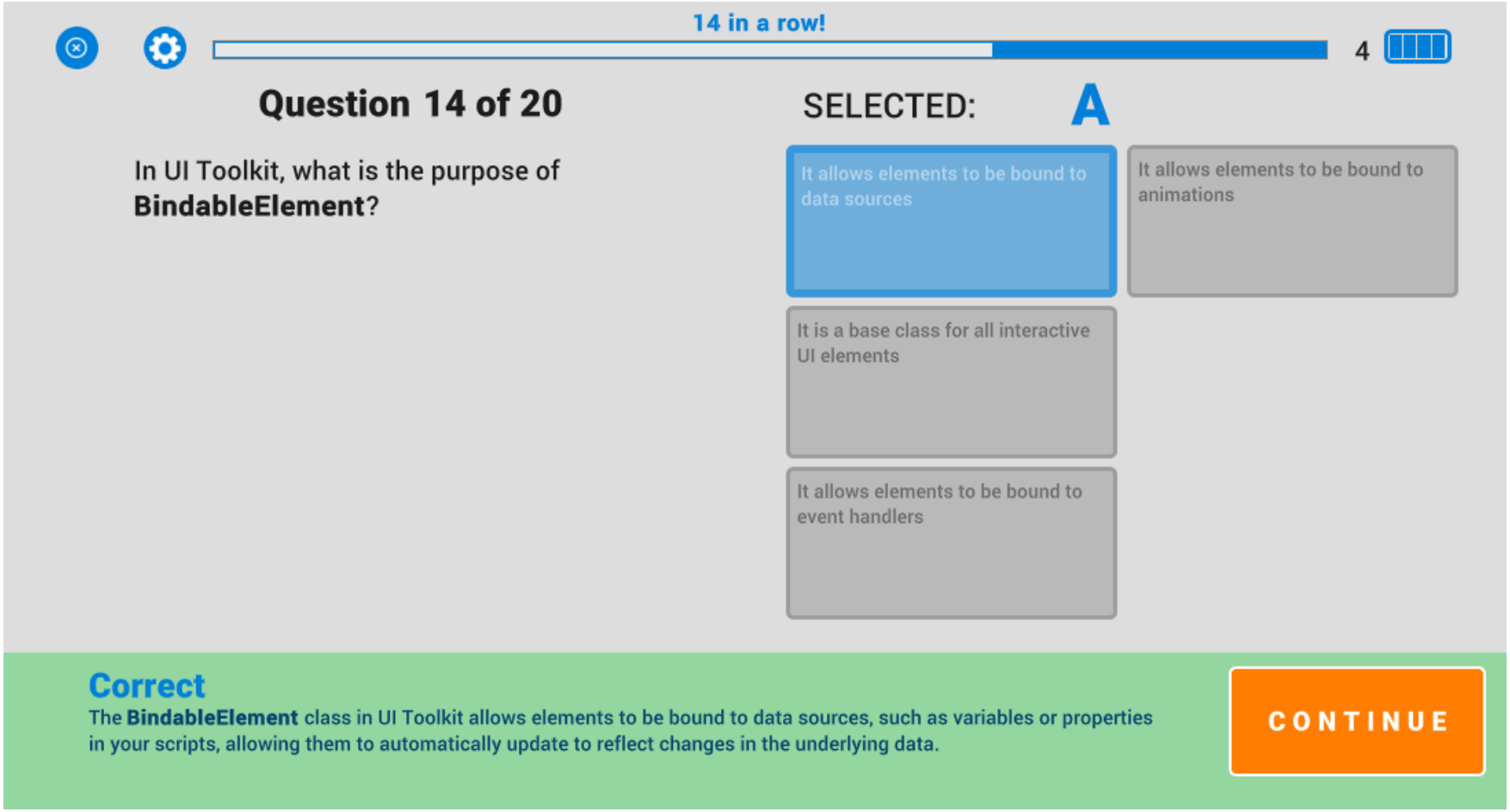

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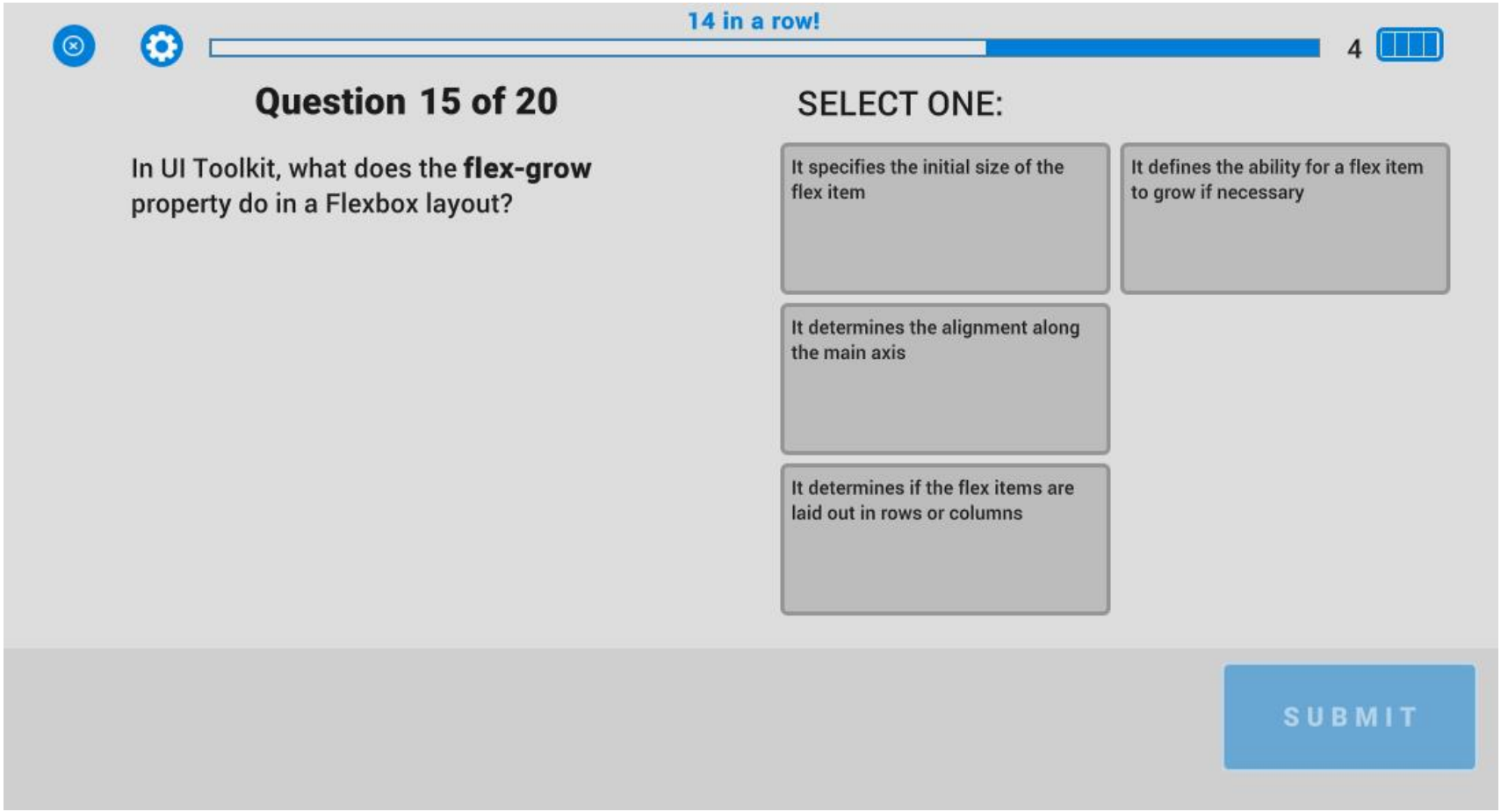

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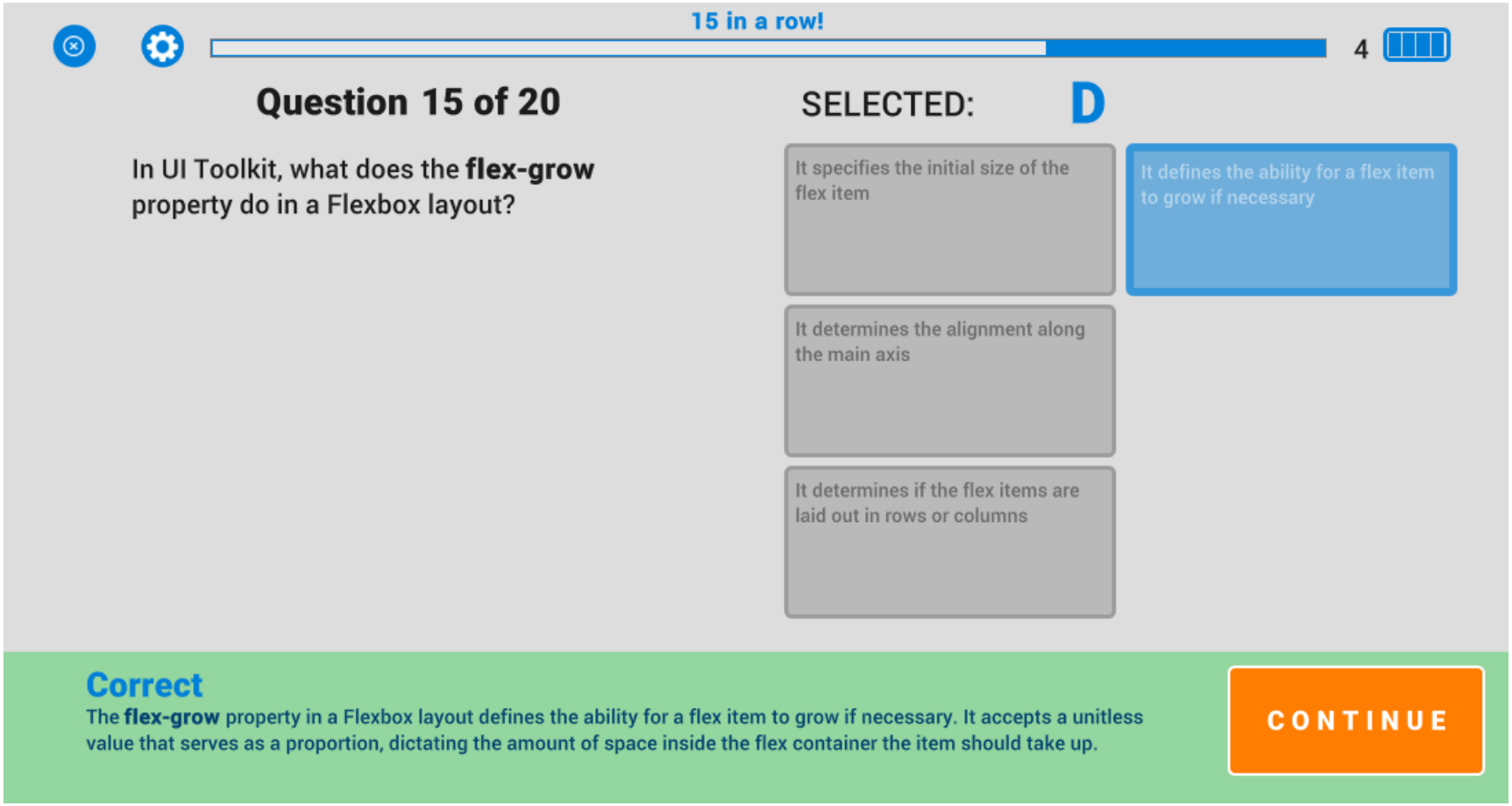

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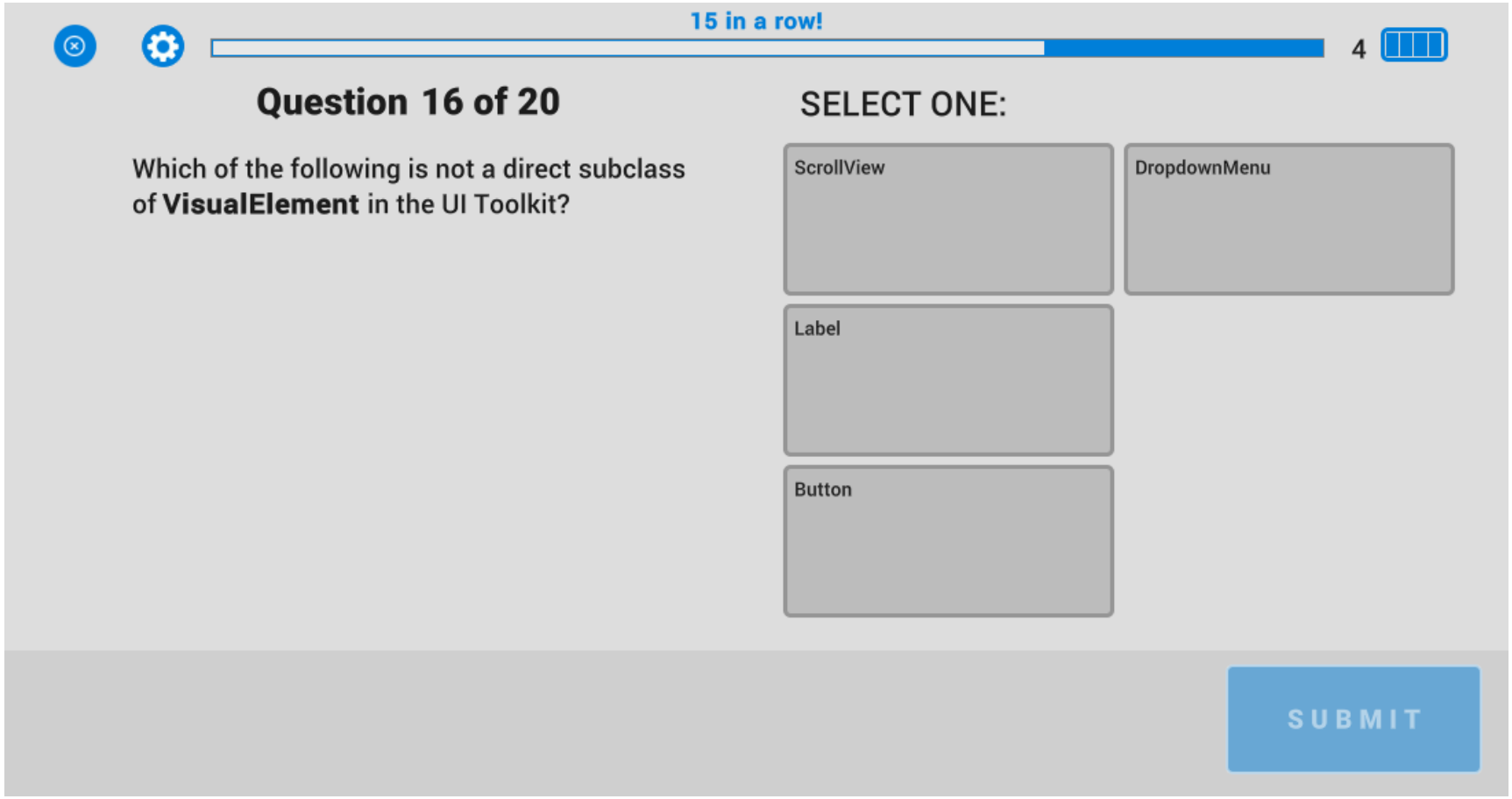

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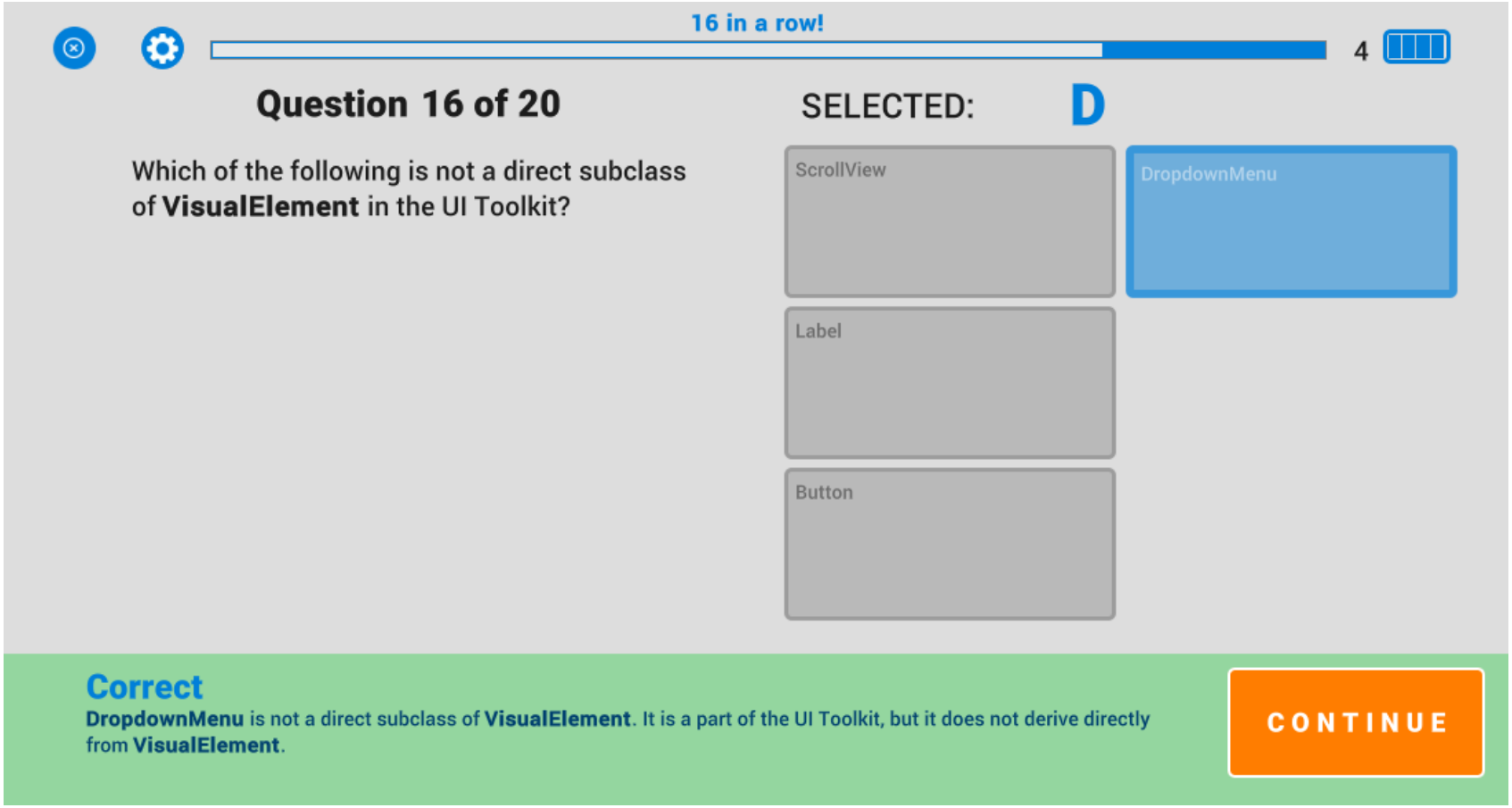

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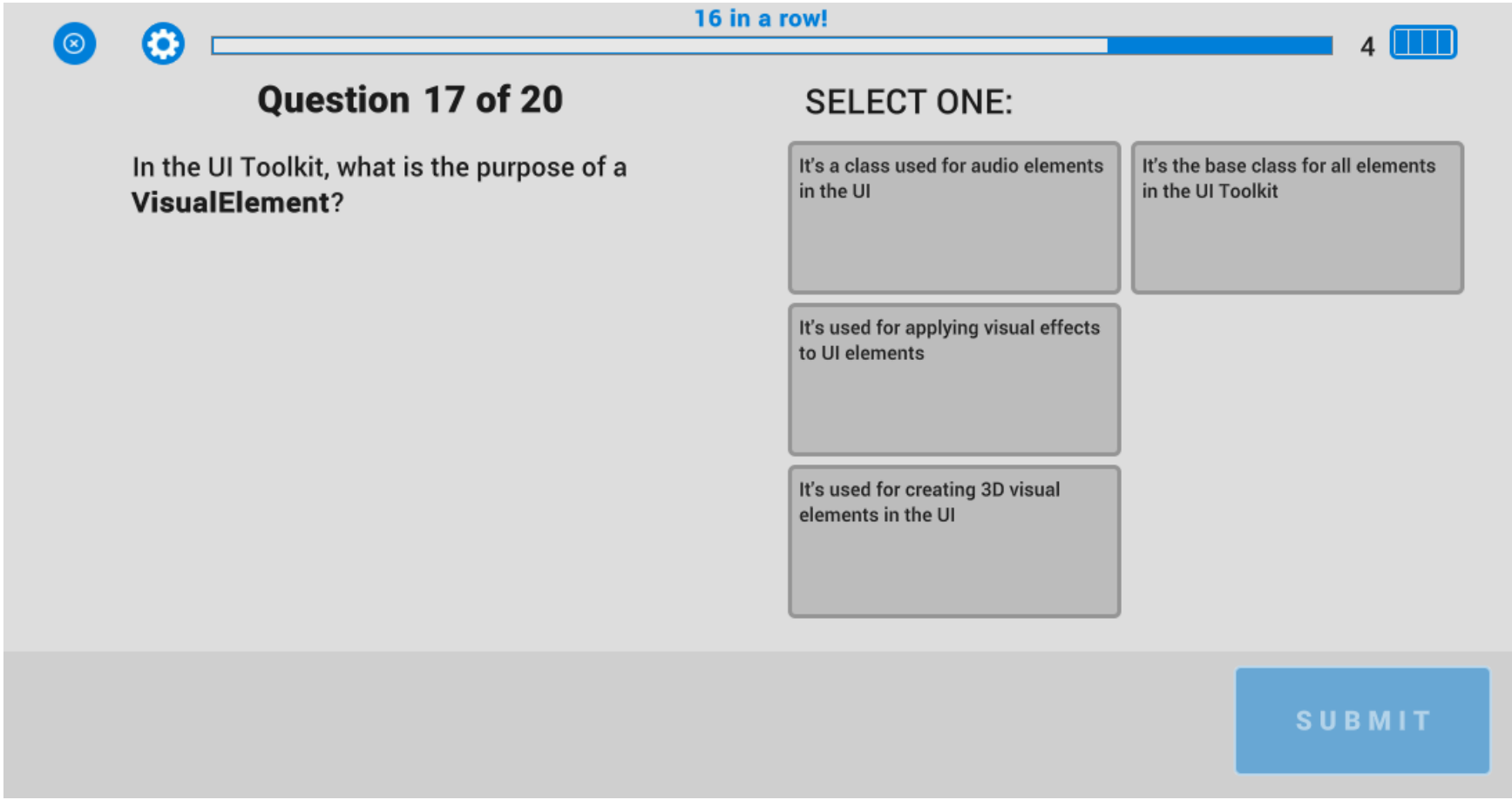

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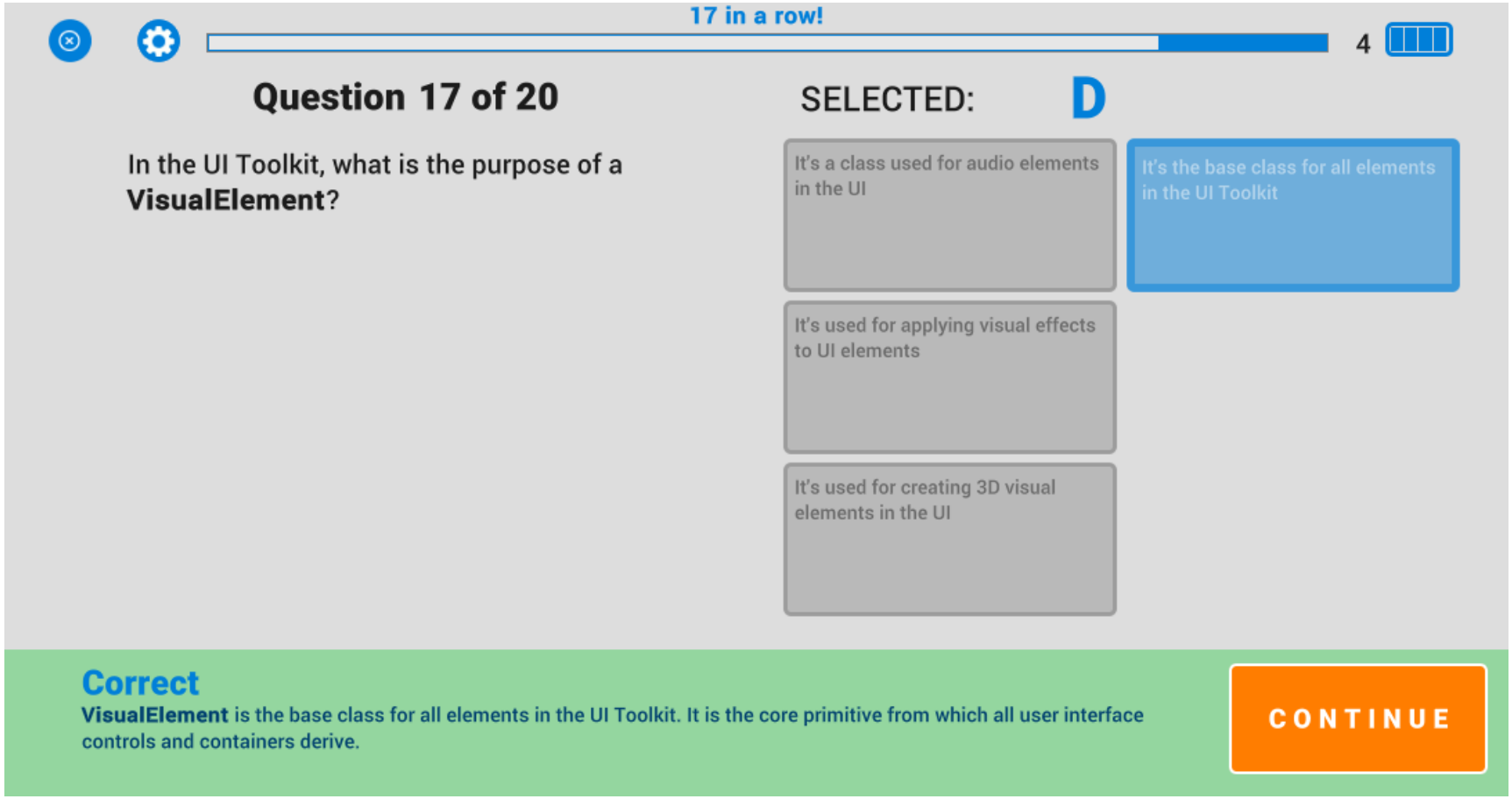

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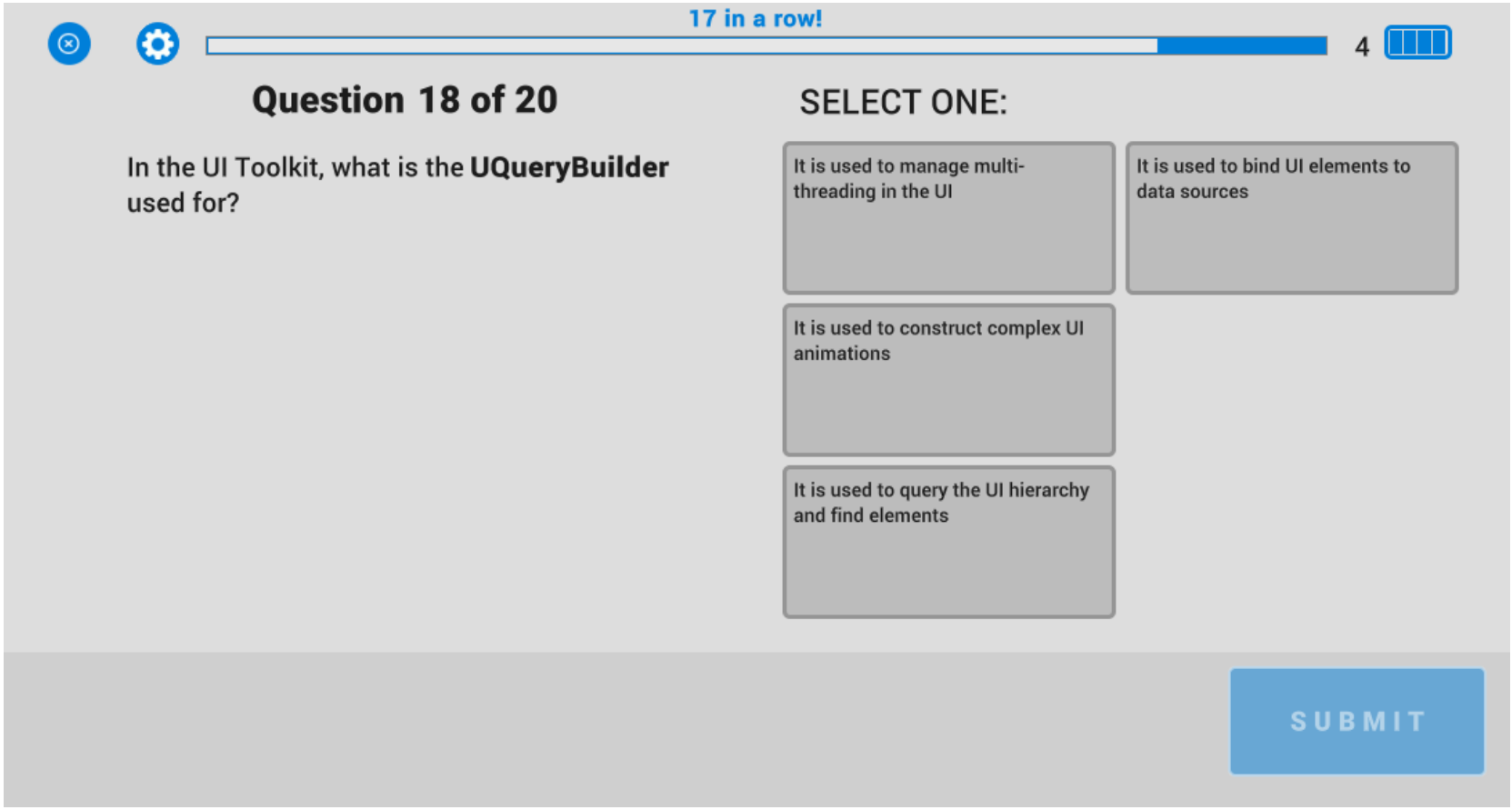

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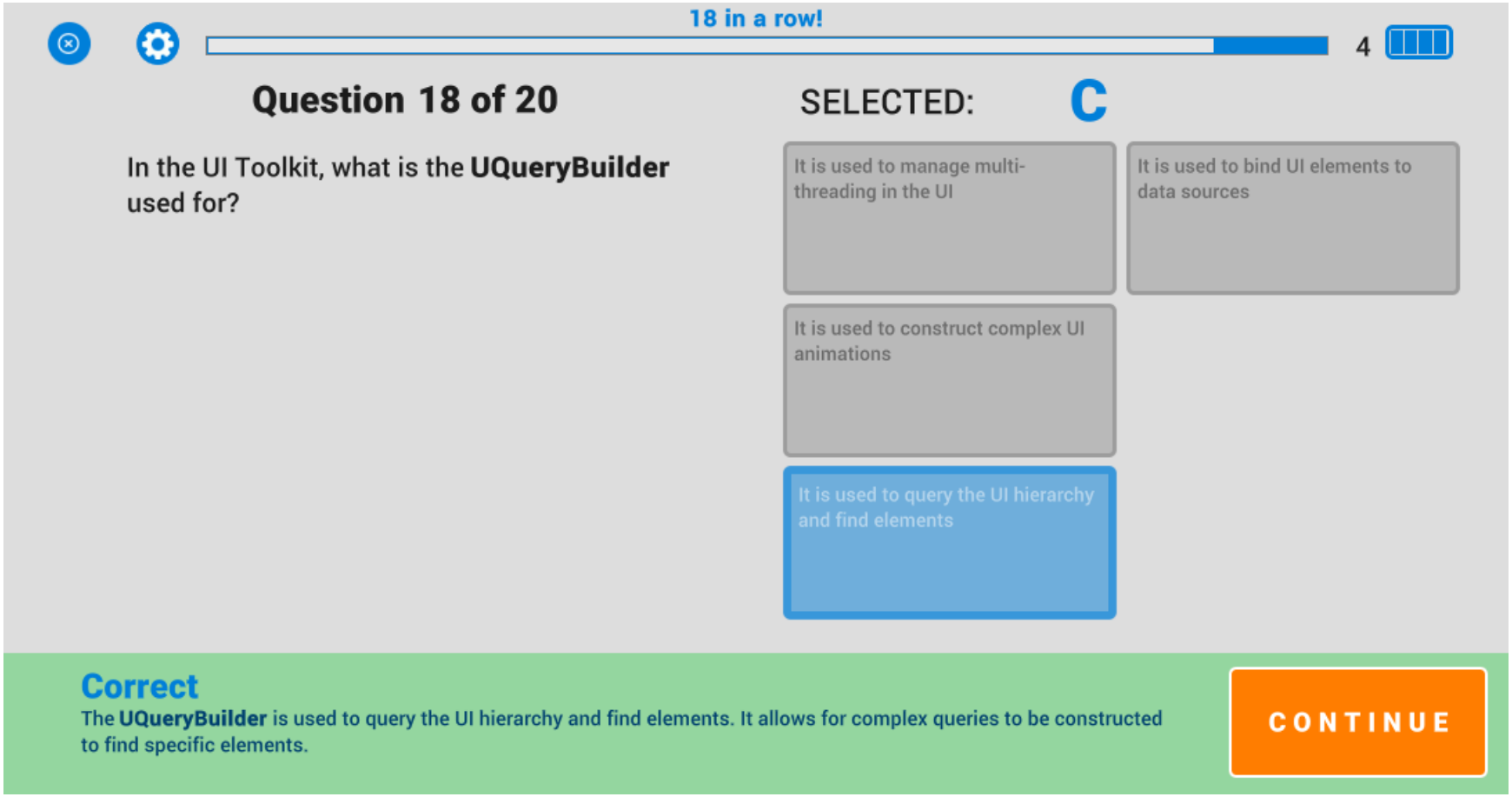

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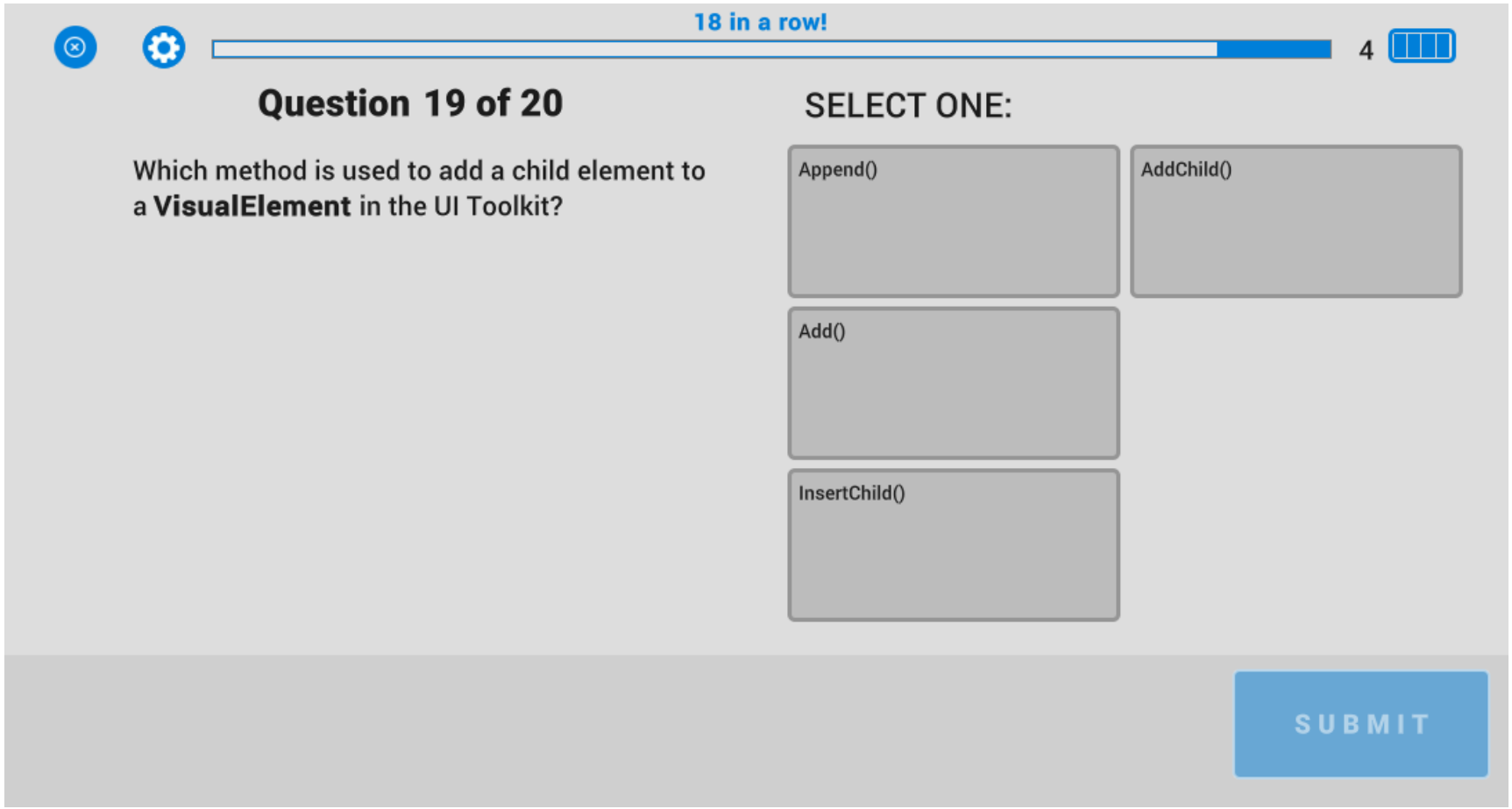

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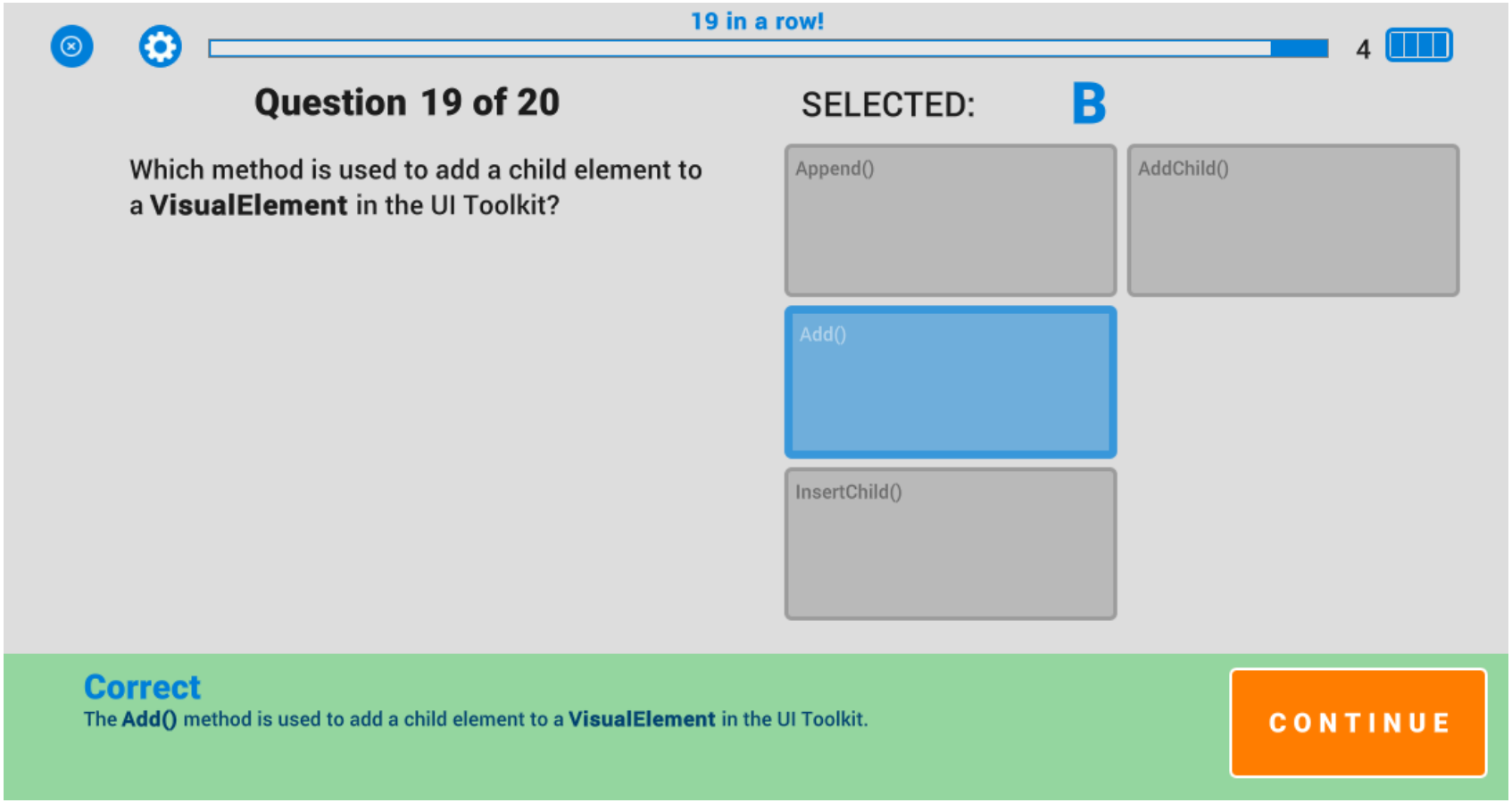

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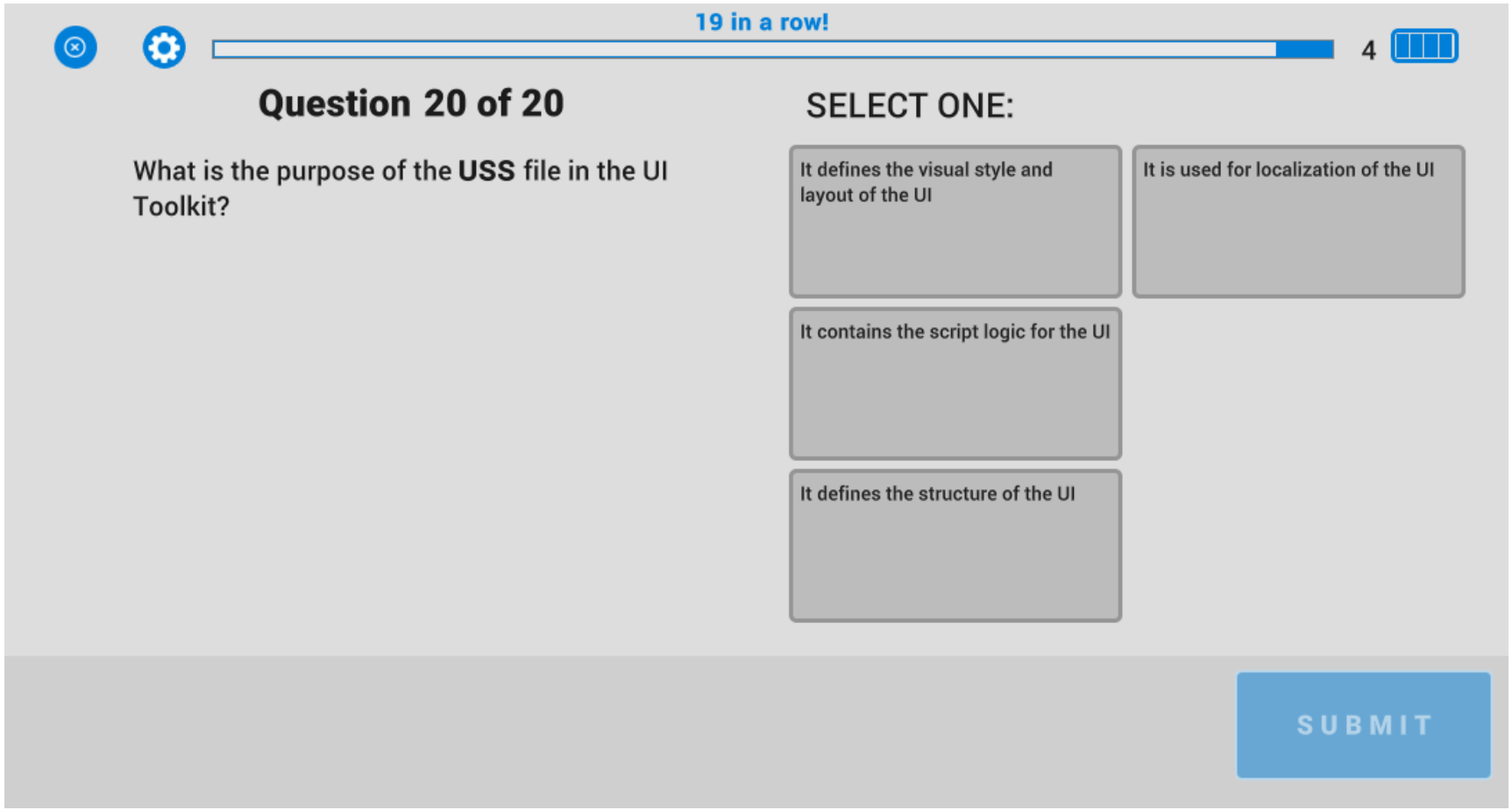

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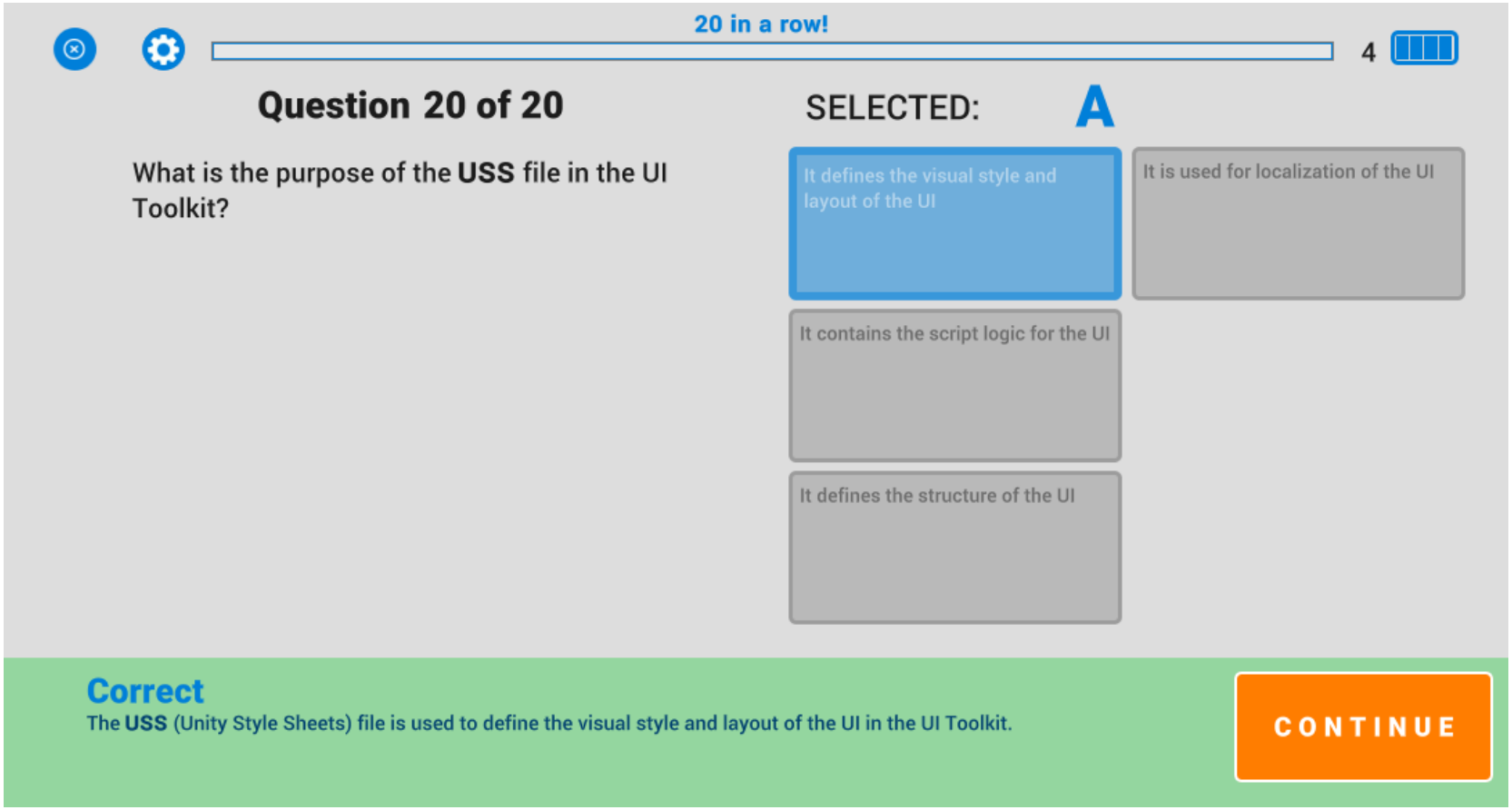


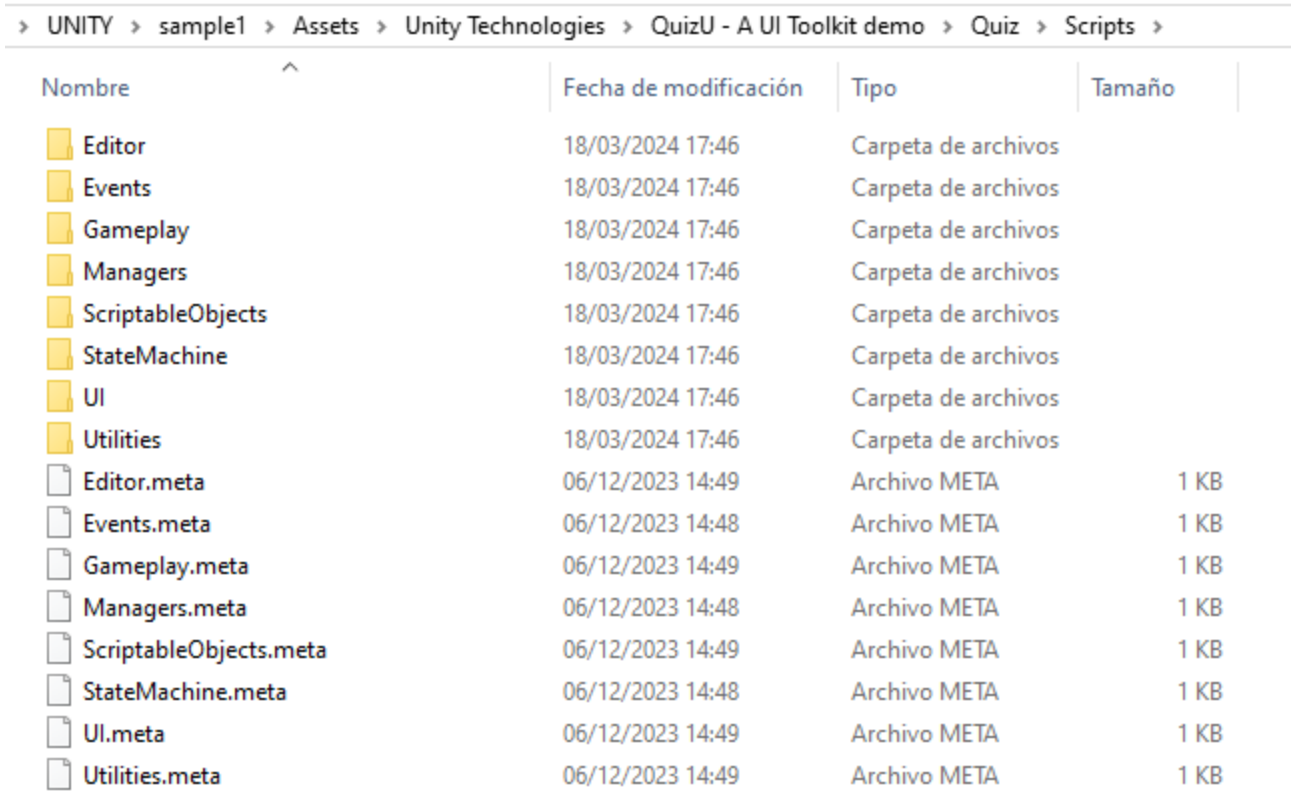
# Quiz


UNITY › sample1 › Assets › Unity Technologies › QuizU - A UI Toolkit demo › Quiz ›
Nombre
Fecha de modificación
Tipo
Tamaño
Data 18/03/2024 17:46 Carpeta de archivos
Prefabs 18/03/2024 17:46 Carpeta de archivos
Scripts 18/03/2024 17:46 Carpeta de archivos
Textures 18/03/2024 17:46 Carpeta de archivos
TutorialInfo 18/03/2024 17:46 Carpeta de archivos
UI 18/03/2024 17:46 Carpeta de archivos
Data.meta 06/12/2023 14:48 Archivo META 1 KB
Prefabs.meta 06/12/2023 14:48 Archivo META 1 KB
Scripts.meta 06/12/2023 14:48 Archivo META 1 KB
Textures.meta 06/12/2023 14:48 Archivo META 1 KB
TutorialInfo.meta 06/12/2023 14:49 Archivo META 1 KB
UI.meta 06/12/2023 14:50 Archivo META 1 KB

# Data → JSON


```json
{
    "text": "How many audio listeners should be present in a Unity scene?",
    "skills": "Implement audio in Unity, Produce customized results by correctly configuring audio in a scene",
    "shuffleOptions": true,
    "options": [
        {
            "text": "As many as there are sound producing objects",
            "isCorrect": false,
            "feedback": "An audio listener plays any audio sources that are within range in a scene. There is only ever one audio listener, generally on the main camera."
        },
        {
            "text": "Two",
            "isCorrect": false,
            "feedback": "An audio listener plays any audio sources that are within range in a scene. There is only ever one audio listener, generally on the main camera."
        },
        {
            "text": "One for each directly interactable object",
            "isCorrect": false,
            "feedback": "An audio listener plays any audio sources that are within range in a scene. There is only ever one audio listener, generally on the main camera."
        },
        {
            "text": "One",
            "isCorrect": true,
            "feedback": "There is only ever one audio listener, generally on the main camera."
        }
    ],
    "feedbackCorrect": "There is only ever one audio listener, generally on the main camera.",
    "feedbackIncorrect": ""
}
```

# Scripts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Fecha de modificación
Tipo
Tamaño
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Events 18/03/2024 17:46 Carpeta de archivos
Gameplay 18/03/2024 17:46 Carpeta de archivos
Managers 18/03/2024 17:46 Carpeta de archivos
ScriptableObjects 18/03/2024 17:46 Carpeta de archivos
StateMachine 18/03/2024 17:46 Carpeta de archivos
UI 18/03/2024 17:46 Carpeta de archivos
Utilities 18/03/2024 17:46 Carpeta de archivos
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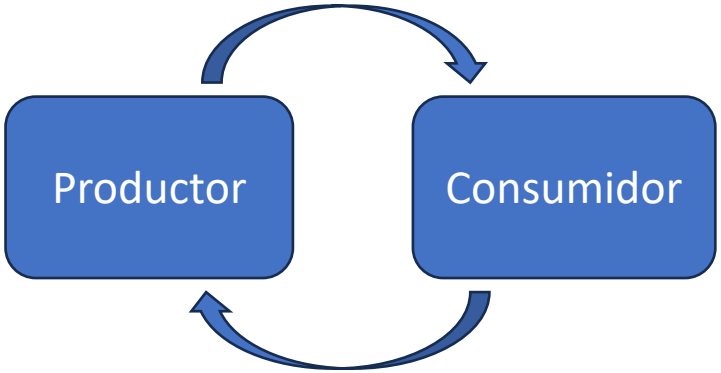
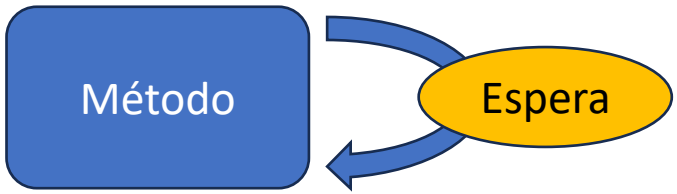
StateMachine.meta 06/12/2023 14:48 Archivo META 1 KB
UI.meta 06/12/2023 14:49 Archivo META 1 KB
Utilities.meta 06/12/2023 14:49 Archivo META 1 KB

# State Machine → Coroutines

```
var q := new queue

coroutine produce
    loop
        while q is not full
            create some new items
            add the items to q
        yield to consume

coroutine consume
    loop
        while q is not empty
            remove some items from q
            use the items
        yield to produce

call produce
```

```
IEnumerator Fade()
{
    Color c = renderer.material.color;
    for (float alpha = 1f; alpha >= 0; alpha -= 0.1f)
    {
        c.a = alpha;
        renderer.material.color = c;
        yield return new WaitForSeconds(.1f);
    }
}
```



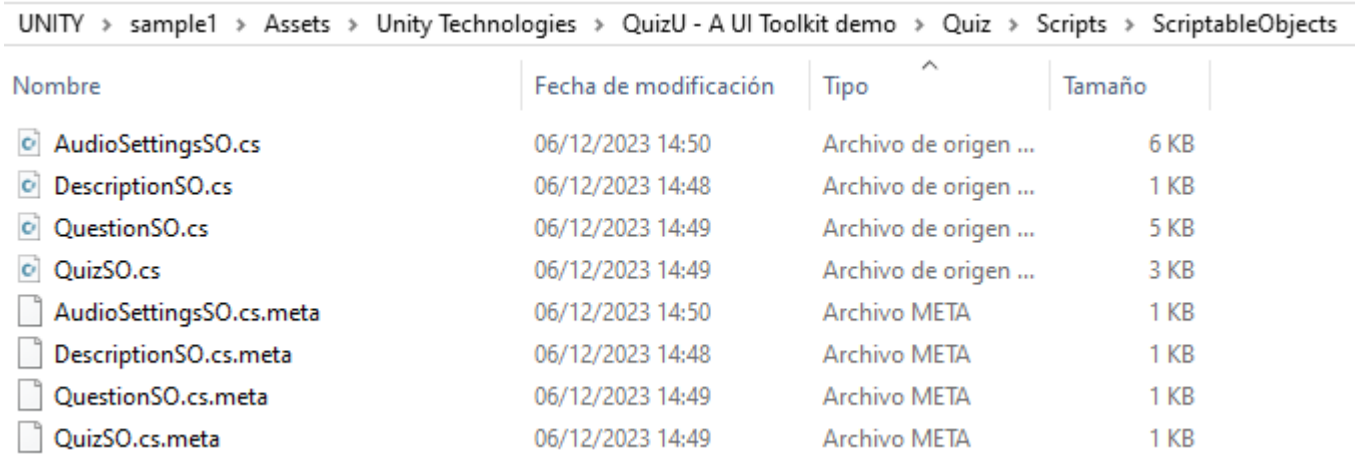



# State Machine → Coroutines

```
                1 reference
124             protected virtual IEnumerator Loop()
125             {
126                 while (true)
127                 {
128                     if (CurrentState != null && m_CurrentPlayCoroutine == null) //current state is done playing
129                     {
130                         if (CurrentState.ValidateLinks(out var nextState))
131                         {
132                             if (m_PlayLock)
133                             {
134                                 //finalize current state
135                                 CurrentState.Exit();
136                                 m_PlayLock = false;
137                             }
138
139                             CurrentState.DisableLinks();
140                             SetCurrentState(nextState);
141                             CurrentState.EnableLinks();
142                         }
143                     }
144
145                     yield return null;
146                 }
147             }
148
                0 references
149             public bool IsRunning => m_LoopCoroutine != null;
150         }
151     }
```

# ScriptableObjects

- Objetos que son instancias de clases que heredan de MonoBehaviour (“MonoBehaviourObjects”) son almacenados en memoria y existen solo mientras se juega el juego.
- **ScriptableObjects** → son almacenados en el disco duro en forma serializada (existen durante y después del juego). Son usados como un contenedor/plantilla para almacenar datos.



# AudioSettingsSO

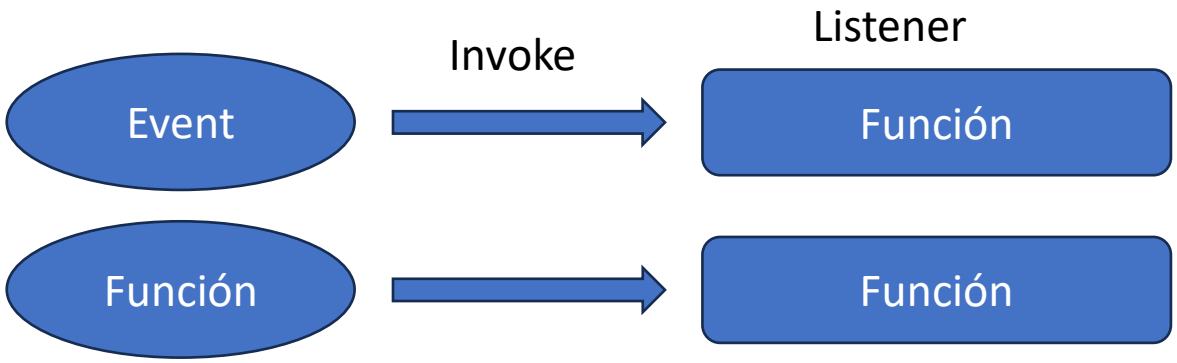
```
14      [CreateAssetMenu(fileName = "AudioSettings", menuName = "Quiz/AudioSettings", order = 1)]
        0 references
15      public class AudioSettingsSO : DescriptionSO
16      {
17          // Default ScriptableObject data
            1 reference
18          const float k_DefaultMasterVolume = 1f;
            1 reference
19          const float k_DefaultSFXVolume = 1f;
            1 reference
20          const float k_DefaultMusicVolume = 0f;
21
22          [Header("Mixer")]
23          [Tooltip("The AudioMixer that controls the audio levels for the game")]
            1 reference
24          [SerializeField] private AudioMixer m_AudioMixer;
25
26          [Header("Volume Settings")]
27          [Tooltip("The master volume level (0 to 1)")]
            2 references
28          [SerializeField] private float m_MasterVolume = k_DefaultMasterVolume;
29
30          [Tooltip("The sound effects volume level (0 to 1)")]
            2 references
31          [SerializeField] private float m_SoundEffectsVolume = k_DefaultSFXVolume;
32
33          [Tooltip("The music volume level (0 to 1)")]
            2 references
34          [SerializeField] private float m_MusicVolume = k_DefaultMusicVolume;
35
36          // Convert bool to 1 and 0 and multiply by MixerGroup (unused in this project, here for demo purposes)
37          [Header("Mute Settings")]
38          [Tooltip("Mute or unmute the master volume")]
            2 references
39          [SerializeField] private bool m_IsMasterMuted = false;
40
41          [Tooltip("Mute or unmute the sound effects volume")]
            2 references
42          [SerializeField] private bool m_IsSoundEffectsMuted = false;
43
44          [Tooltip("Mute or unmute the music volume")]
            2 references
45          [SerializeField] private bool m_IsMusicMuted = false;
46
```

# QuestionSO

```
33      public class QuestionSO : ScriptableObject
34      {
35          [Tooltip("List of question text, supporting different font sizes.")]
            2 references
36          [SerializeField] List<QuestionText> m_QuestionText;
37          [Tooltip("Optional image associated with the question.")]
            1 reference
38          [SerializeField] [Optional] Sprite m_QuestionImage;
39          [TextArea(3, 5)]
40          [Tooltip("Skills tested or used in the question.")]
            2 references
41          [SerializeField] string m_Skills;
42          [Tooltip("Should the answers should be shuffled?")]
            2 references
43          [SerializeField] bool m_ShuffleAnswers;
44          [Tooltip("Additional information about the correct/incorrect responses")]
            6 references
45          [SerializeField] List<Answer> m_Answers;
46          [TextArea(3, 5)]
47          [Tooltip("Additional information provided when the correct answer is chosen.")]
            2 references
48          [SerializeField] string m_FeedbackCorrect;
49          [TextArea(3, 5)]
50          [Tooltip("Additional information provided when an incorrect answer is chosen.")]
            2 references
51          [SerializeField] string m_FeedbackIncorrect;
52          [Tooltip("Optional link to the documentation for more information.")]
            0 references
53          [SerializeField][Optional] string m_FeedbackLink;
54
```

# Actions

- En clase hemos visto Delegates, events y callbacks. Resumiendo:
  - Delegates en C# son punteros a funciones. Los Delegates nos permiten usar las funciones como parámetros de entrada de otras funciones. Esto nos permite crear Callbacks.
  - En los Callbacks, un evento de sistema dispara una función.
  - En las Actions, el final de una función dispara otra función.
  - Observer Pattern:



# Events

```
15      public class AudioSettingsSO : DescriptionSO
76
77          // Event subscriptions
            0 references
78          private void OnEnable()
79          {
80              SettingsEvents.MasterVolumeChanged += SettingsEvents_MasterVolumeChanged;
81              SettingsEvents.MusicVolumeChanged += SettingsEvents_MusicVolumeChanged;
82              SettingsEvents.SFXVolumeChanged += SettingsEvents_SFXVolumeChanged;
83
84              // Note: we disable validating the Sound Effects AudioClips here, instead we
85              // validate it from the GameplaySounds class
86
87              // NullRefChecker.Validate(this);
88          }
89
90          // Event unsubscriptions
            0 references
91          private void OnDisable()
92          {
93              SettingsEvents.MasterVolumeChanged -= SettingsEvents_MasterVolumeChanged;
94              SettingsEvents.MusicVolumeChanged -= SettingsEvents_MusicVolumeChanged;
95              SettingsEvents.SFXVolumeChanged -= SettingsEvents_SFXVolumeChanged;
96          }
97
```

# Game events → Actions

```
0 references
public static class GameEvents
{
    #region Gameplay events

    0 references
    public static Action<int> IndexUpdated;

    // Refreshed the current Question with new ScriptableObject data
    0 references
    public static Action<QuestionSO> QuestionUpdated;

    // Selected one or more user selected responses
    0 references
    public static Action<List<string>> AnswerSelected;

    // Submitted the selected answer
    0 references
    public static Action AnswerSubmitted;

    // Passes feedback for correct/incorrect responses
    0 references
    public static Action<string> CorrectlyAnswered;
    0 references
    public static Action<string> IncorrectlyAnswered;
```

# Índice

- Project Samples
  - Dragon Crashers
    - Custom Controls
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      - Radial progress bar
  - Quizu
    - Demos
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      - Manipulators
    - Quiz
      - Data
      - Scripts
        - Coroutines
        - ScriptablesObjects
        - Actions

- **Proyecto**

# Proyecto

- El proyecto se hace individual o en grupos de 2-3 personas.
- Tiene que recoger más o menos todo lo que hemos ido viendo en las prácticas.
- Crearos una cuenta en Github (si no la tenéis ya).
- En el campus virtual hay dos enlaces:
  - 1. PDF con el prototipo en Figma.
  - 2. Fichero de texto con el enlace a github para el proyecto.

Último día presentación → Proyecto y prácticas

| Mayo 2024 | | | | | | |
|---|---|---|---|---|---|---|
| 29 | 30 | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |

Examen (si no proyecto)

| | | |
|---|---|---|
| Miércoles 29 | 9:00 | 2ºDSI |
| | 13:00 | |
| de mayo | 17:00 | CSV |
| Jueves 30 | 9:00 | IW |
| | 13:00 | |
| de mayo | 17:00 | EIRV |
| Viernes 31 | 9:00 | 2ºP2 |
| | 13:00 | |
| de mayo | 17:00 | 3ºP3 |
| | | Gr. Videojuegos |