Programming Short Term Project 2 (Design a trivia game)

Description

Students will work in small groups to design a level of a trivia style game.

Standards

IT-PGA-2 Describe the software application life cycle and use a prototype development model to develop applications.
IT-PGA-4 Design, develop, and implement accessible and usable interfaces, and analyze applications for engaging the user.

Business Ethics

Students will model work readiness traits required for success in the workplace including teamwork, multitasking, integrity, honesty, accountability, punctuality, time management, and respect for diversity.

Expectations

Students are expected to use the skills and concepts learned in the course to design a working trivia game.

Objectives

They will document game mechanics, sprites, goals, scoring, and sketch of the level.

Understand the three activity steps that will be taken to complete the level.

Solve problems and think critically

Employ effective reading and writing skills

Demonstrate planning and time-management skills

Work as a team to solve problems and resolve conflicts

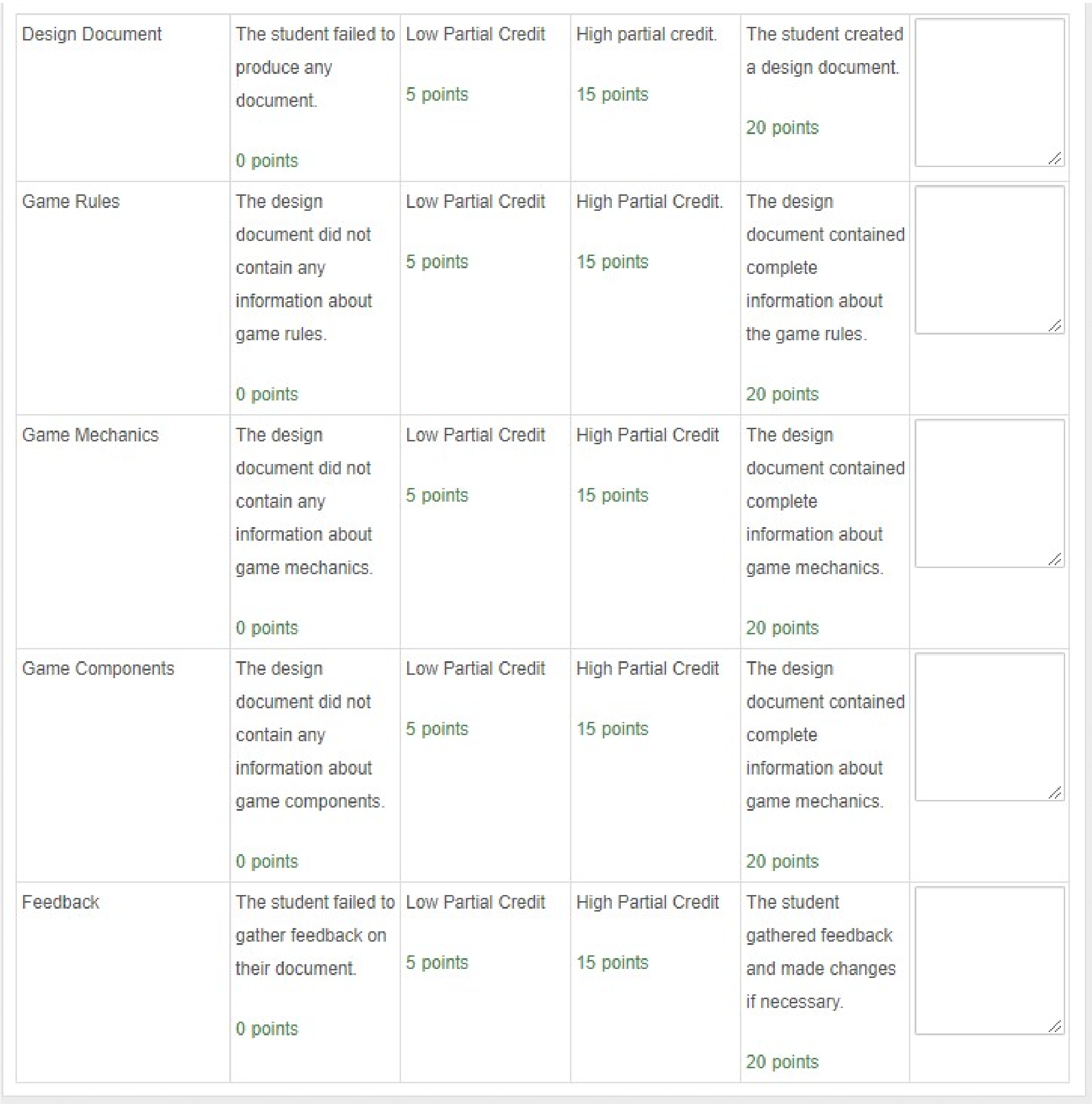
Demonstrate positive interpersonal skills, e.g., communication, respect, and teamwork

Give and receive constructive feedback

Project Time

The project will take approximately 5 hours to complete.

Rubric



Design Document	The student failed to produce any document. 0 points	Low Partial Credit 5 points	High partial credit. 15 points	The student created a design document. 20 points	
Game Rules	The design document did not contain any information about game rules. 0 points	Low Partial Credit 5 points	High Partial Credit. 15 points	The design document contained complete information about the game rules. 20 points	
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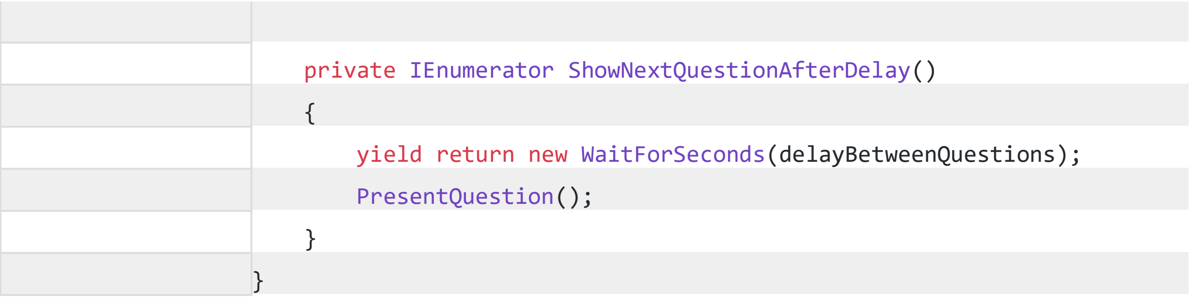
```
using UnityEditor;
using UnityEngine;

[CreateAssetMenuAttribute]
public class QuizQuestion : ScriptableObject
{
    [SerializeField]
    private string question;

    [SerializeField]
    private string[] answers;

    [SerializeField]
    private int correctAnswer;

    public string Question { get { return question; } }
    public string[] Answers { get { return answers; } }
    public int CorrectAnswer { get { return correctAnswer; } }

    public bool Asked { get; internal set; }

    private void OnValidate()
    {
        if (correctAnswer > answers.Length)
        {
            correctAnswer = 0;
        }

        RenameScriptableObjectToMatchQuestionAndAnswer();
    }

    private void RenameScriptableObjectToMatchQuestionAndAnswer()
    {
        string desiredName = string.Format("{0} [{1}]",
            question.Replace("?", ""),
            answers[correctAnswer]);

        string assetPath = AssetDatabase.GetAssetPath(this.GetInstanceID());
        string shouldEndWith = "/" + desiredName + ".asset";
        if (assetPath.EndsWith(shouldEndWith) == false)
        {
            Debug.Log("Want to rename to " + desiredName);
            AssetDatabase.RenameAsset(assetPath, desiredName);
            AssetDatabase.SaveAssets();
        }
    }
}
```

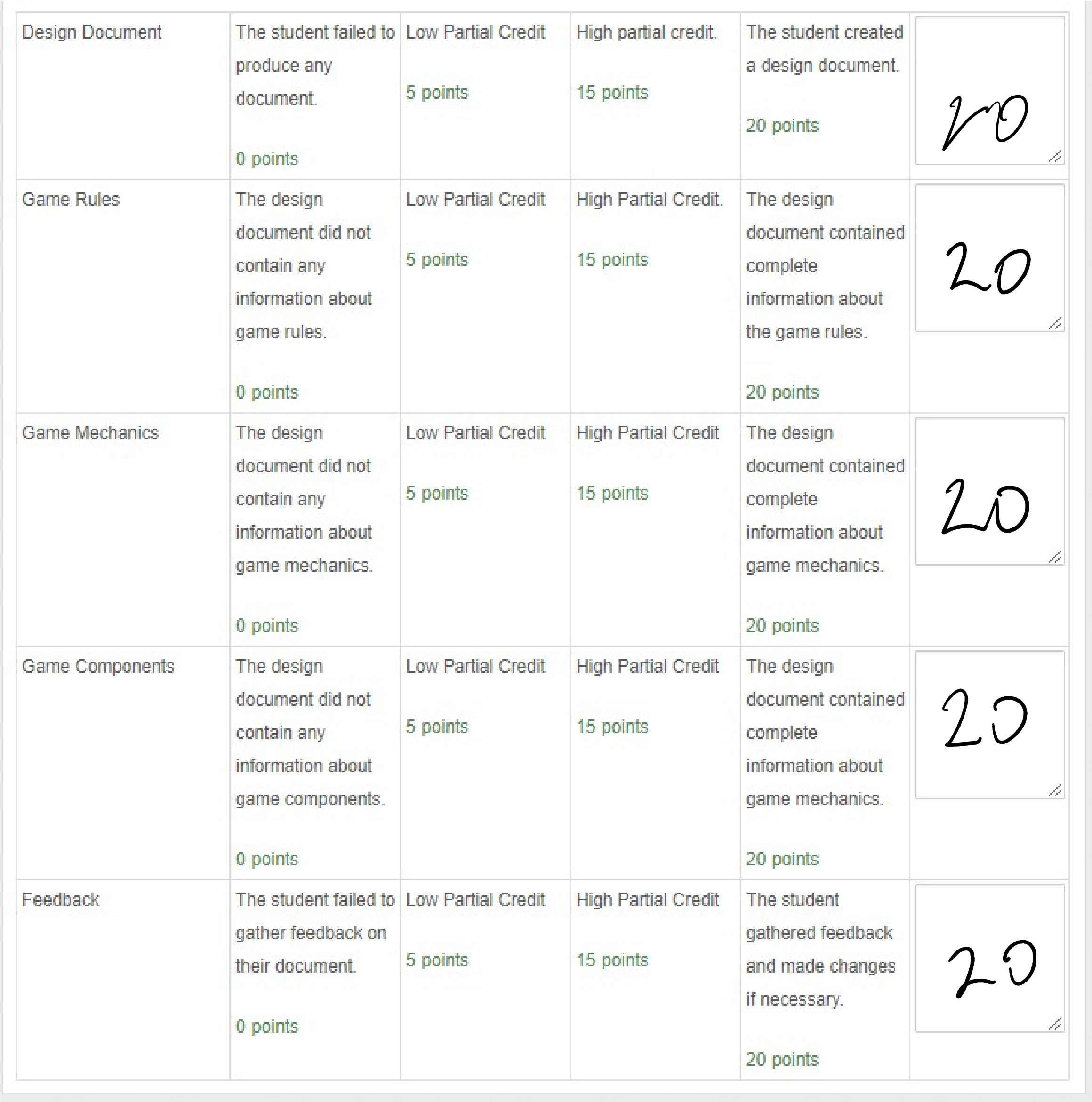
```
using System;
using UnityEngine;
using UnityEngine.UI;

public class UIController : MonoBehaviour
{
    [SerializeField]
    private Text questionText;
    [SerializeField]
    private Button[] answerButtons;

    [SerializeField]
    private GameObject correctAnswerPopup;
    [SerializeField]
    private GameObject wrongAnswerPopup;

    public void SetupUIForQuestion(QuizQuestion question)
    {
        correctAnswerPopup.SetActive(false);
        wrongAnswerPopup.SetActive(false);

        questionText.text = question.Question;

        for (int i = 0; i < question.Answers.Length; i++)
        {
            answerButtons[i].GetComponentInChildren<Text>().text = question.Answers[i];
            answerButtons[i].gameObject.SetActive(true);
        }

        for (int i = question.Answers.Length; i < answerButtons.Length; i++)
        {
            answerButtons[i].gameObject.SetActive(false);
        }
    }

    public void HandleSubmittedAnswer(bool isCorrect)
    {
        ToggleAnswerButtons(false);
        if (isCorrect)
        {
            ShowCorrectAnswerPopup();
        }
        else
        {
            ShowWrongAnswerPopup();
        }
    }

    private void ToggleAnswerButtons(bool value)
    {
        for (int i = 0; i < answerButtons.Length; i++)
        {
            answerButtons[i].gameObject.SetActive(value);
        }
    }

    private void ShowCorrectAnswerPopup()
    {
        correctAnswerPopup.SetActive(true);
    }

    private void ShowWrongAnswerPopup()
    {
        wrongAnswerPopup.SetActive(true);
    }
}
```

```
using System.Linq;
using UnityEngine;

public class QuestionCollection : MonoBehaviour
{
    private QuizQuestion[] allQuestions;

    private void Awake()
    {
        LoadAllQuestions();
    }

    private void LoadAllQuestions()
    {
        allQuestions = Resources.LoadAll<QuizQuestion>("Questions");
    }

    public QuizQuestion GetUnaskedQuestion()
    {
        ResetQuestionsIfAllHaveBeenAsked();

        var question = allQuestions
            .Where(t => t.Asked == false)
            .OrderBy(t => UnityEngine.Random.Range(0, int.MaxValue))
            .FirstOrDefault();

        question.Asked = true;
        return question;
    }

    private void ResetQuestionsIfAllHaveBeenAsked()
    {
        if (allQuestions.Any(t => t.Asked == false) == false)
        {
            ResetQuestions();
        }
    }

    private void ResetQuestions()
    {
        foreach (var question in allQuestions)
            question.Asked = false;
    }
}
```

```
using System.Collections;
using UnityEngine;

public class QuizController : MonoBehaviour
{
    private QuestionCollection questionCollection;
    private QuizQuestion currentQuestion;
    private UIController uiController;

    [SerializeField]
    private float delayBetweenQuestions = 3f;

    private void Awake()
    {
        questionCollection = FindObjectOfType<QuestionCollection>();
        uiController = FindObjectOfType<UIController>();
    }

    private void Start()
    {
        PresentQuestion();
    }

    private void PresentQuestion()
    {
        currentQuestion = questionCollection.GetUnaskedQuestion();
        uiController.SetupUIForQuestion(currentQuestion);
    }

    public void SubmitAnswer(int answerNumber)
    {
        bool isCorrect = answerNumber == currentQuestion.CorrectAnswer;
        uiController.HandleSubmittedAnswer(isCorrect);

        StartCoroutine(ShowNextQuestionAfterDelay());
    }
```



```
    private IEnumerator ShowNextQuestionAfterDelay()
    {
        yield return new WaitForSeconds(delayBetweenQuestions);
        PresentQuestion();
    }
}
```



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Great job!   100 pts