Interview Task Outline: Unity3D Development

Objective:

Develop a Unity3D scene with a 2-display setup, one for controls and one for a character, that integrates audio recording, voice activity detection, and lip-syncing. The task aims to assess your knowledge of Unity3D, 3D character animation, lip sync, queuing algorithms, and proficiency in C#.

Task Overview:

You are required to create a Unity3D scene where:

1. The **bottom display** (Control Panel) has:
   - **Two buttons**:
     - One to start recording audio.
     - One to stop the character while speaking.
   - **Dropdown menu** to select the language.
   - **Two additional buttons** to trigger predefined animations on the character.
2. The **top display** will show a character with idle animation.
   - When the user starts recording, the character remains idle until the audio recording stops.
   - After the recording stops, the audio will be sent to a remote server (server IP will be provided).
   - The response from the server will include an audio file, which should be played with corresponding lip-sync animation on the character.
   - The stop button should immediately stop the character's lip sync and any playing audio.

Specific Features:

- **Voice Activity Detection**: Recording should start when the user clicks the start recording button but only stop when the user finishes talking.
- **Lip Sync**: Implement lip sync so that the character's lips match the received audio file.

- **Remote Server**: You don't need to build the server. Simply implement the HTTP request to send the recorded audio and receive the response.
- **Character Animations**: The additional two buttons should trigger idle animations for the character.

Assets Provided:

- Character FBX file
- Animation files
- Button shapes
- Server IP address for HTTP request/response

Requirements:

- **Technology**: Unity3D, C#
- **Tools**: You may use any online resources or AI tools, provided you fully understand their functionality.
- **Deliverable**: Zip file of the Unity project, exported exe project, a document clarifying the techniques and approaches you implemented for each aspect of the task, then submit all deliverables for review through an Email.

Evaluation criteria include, but are not limited to:

The quality and organization of the code, adherence to Unity3D best practices, effective use of C# for both the front-end and back-end logic, the proper implementation of the voice activity detection system, seamless integration of the audio recording and lip-syncing, and the responsiveness of the user interface. Additionally, the candidate's ability to efficiently handle animations, manage HTTP requests for audio processing, and create a smooth, bug-free user experience will be assessed. Bonus points will be given for any added enhancements or optimizations beyond the outlined requirements, demonstrating creativity and a deeper understanding of Unity3D.

Deadline:

The task should be completed by September 14th 9PM Jordan timezone.

Final Interview:

In the final interview, you will meet with the management to discuss your task and the project's details, as well as the terms of employment within the project scope.