Sprint2 – XAudio2 Voice

Student Information

Integrity Policy: All university integrity and class syllabus policies have been followed. I have neither given, nor received, nor have I tolerated others' use of unauthorized aid.

I understand and followed these policies: ◯ Yes ◯ No

Name:

Date:

Submission Details

Final ***Changelist*** number:

Verified build: ◯ Yes ◯ No

Required Configurations: x86 - DEBUG (only)

YouTubeLink:

Discussion (What did you learn):

YouTube Process

- Record the YouTube demo
  - You need to record in stereo with commentary
    - 2 channel with both computer (desktop) and microphone recording
  - Suggestion: ***OBS*** screen capture
- Record the desktop (enough to show your directory and the visual studio and output)
  - Show your directory in recording
    - Launch the visual studio (double click solution)
  - Show off relevant parts of the code with commentary
  - Launch and demo the Sprint
    - Play the demo and add your commentary in real-time
  - Watch your video
    - Verify that video clear and can you hear the commentary with audio in stereo?
- Note: Weekly Sprints cannot be longer that 5:00 mins
  - If you go over… do it again
- Publish your YouTube recording
  - Make sure it is accessible without any login or permission to play
  - It can be private but not restrictive to play by anyone with the link
    - If unplayable as-is… Grade 0
- Submit your code to perforce to the appropriate Sprint directory
  - Verify it

Pdf form (this document)

- *Submit this PDF to perforce*
  - *Fill in form*
    - *Name, changlelist, etc…*
  - *Submit back to perforce*
    - *Check it out*
    - *Submit it back to perforce to the same location*

Verify Builds

- Follow the Piazza procedure on submission
  - Verify your submission compiles and works at the changelist number.

- Verify that only MINIMUM files are submitted
  - No – Generated files
    - *.pdb, *.suo, *.sdf, *.user, *.obj, *.exe, *.log, *.pdb, *.db, *.user
    - Anything that is generated by the compiler should not be included
  - No – Generated directories
    - /Debug, /Release, /Log, /ipch, /.vs
- Typical files project files that are required
  - *.sln, *.cpp, *.h
  - *.vcxproj, *.vcxproj.filters, CleanMe.bat

Standard Rules

Submit multiple times to Perforce

- Submit your work as you go to perforce several times (at least 5)
  - As soon as you get something working, submit to perforce
  - Have reasonable check-in comments
    - Points will be deducted if minimum is not reached

Write all programs in cross-platform C++

- Optimize for execution speed and robustness
- Working code doesn't mean full credit

Submission Report

- Fill out the submission Report
  - No report, no grade

Code and project needs to compile and run

- Make sure that your program compiles and runs
  - Warning level ALL …
  - NO Warnings or ERRORS
    - Your code should be squeaky clean.
  - Code needs to work "as-is".
    - No modifications to files or deleting files necessary to compile or run.
  - All your code must compile from perforce with no modifications.
    - Otherwise it's a 0, no exceptions

Project needs to run to completion

- If it crashes for any reason…
  - It will not be graded and you get a 0

No Containers

- NO STL allowed {Vector, Lists, Sets, etc...}
  - No automatic containers or arrays
  - You need to do this the old fashion way - ***YOU EARNED IT***

Leave Project Settings

- Do NOT change the project or warning level
  - Any changing of level or suppression of warnings is an integrity issue

Simple C++

- No modern C++
  - No Lambdas, Autos, templates, etc…
  - No Boost
- NO Streams
  - Used fopen, fread, fwrite…
- No code in MACROS
  - Code needs to be in cpp files to see and debug it easy
- ***Exception:***
  - implicit problem needs templates

Leaking Memory

- If the program leaks memory
  - There is a deduction of 20% of grade
- If a class creates an object using new/malloc
  - It is responsible for its deletion
- Any ***MEMORY*** dynamically allocated that isn't freed up is ***LEAKING***
  - Leaking is ***HORRIBLE***, so you lose points

No Debug code or files disabled

- Make sure the program is returned to the original state
  - If you added debug code, please return to original state
- If you disabled file, you need to re-enable the files
  - All files must be active to get credit.
  - Better to lose points for unit tests than to disable and lose all points

~~**No Adding files to this project**~~

- ~~This project will work "as-is" do not add files…~~
- ~~Grading system will overwrite project settings and will ignore any student's added files and will returned program to the original state~~

UnitTestConfiguration file (if provided) needs to be set by user

- Grading will be on the UnitTestConfiguration settings
  - Please explicitly set which tests you want graded… no regrading if set incorrectly

Due Dates

- See Piazza for due date and time
- Submit program perforce in your student directory assignment supplied.
- Fill out your this ***Submission Report*** and ***Sprint*** to perforce
    - ***ONLY*** use Adobe Reader to fill out form, all others will be rejected.
    - Fill out the form and discussion for full credit.

Goals

- Learn
    - XAudio2 API research
        - Learn how to use voices
        - Start learning and developing for this API

Assignments

1. ***XAudio2 voices***
    - Create a demo that explores Voices
        - NOTE
            i. Only for 2 speaker STEREO
            ii. Demo must be implemented inside the GameEngine project
        - Play voices (samples)
            i. Loading
            ii. Reading from a file
            iii. Associating buffers
        - Repeated playback of a single voice
            i. Need to play one voice several times with a small delay between samples
                - Example:
                    a. Gun sound effect lasting 2 sec
                    b. Firing off 5 sounds every 0.5 seconds so you hear the layering
        - Be able to change the voices attributes
            i. Volume, pan, pitch
        - Types of playback
            i. Looping
        - Basic controls
            i. Start, Stop, Pause
            ii. Expand and explore more
        - Research the API

- ***Try and experiment with threads***
    - See if you can launch the audio system on a separate thread
    - Many things to explore and experiment with threads
- Discuss on YouTube Demo
    - Build and explain the code
    - Run the demo
    - Make sure you record in stereo

2. ***Read the first two chapters on Threads***
    - Currency in Action by Anthony Williams
    - It's on DePaul Ebooks
    - https://proquestcombo-safaribooksonline-com.ezproxy.depaul.edu/book/programming/cplusplus/9781617294693

3. ***Create Audio samples for this Sprint***
    - Use Audacity or something similar sample 48 kHz, wav format
    - You can use the ones from class or find your own audio samples

4. ***Deliverables***
    - Stand-alone C++ demo
        - Create a demo to show off the ***ALL*** of the above features
            i. Prove that you understand inside and out the features of XAudio2 Voices.
        - Use audio samples that allow you to demonstrate the above features easily
    - Visual Studio 2019 Enterprise Edition
        - C++ WARNING LEVELL ALL
        - Minimum code, no temporaries or generated items
        - Needs to be able to compile and run "as-is" without checking out from perforce or changing the attributes of the files
    - For some people – the demo is hardest part of this exercise

Validation

Simple checklist to make sure that everything is submitted correctly

- Submitted project to perforce correctly
    - Is the project compiling and running without any errors or warnings?
    - Is the submission report filled in and submitted to perforce?
    - Follow the verification process for perforce
        - Is all the code there and compiles "as-is"?
        - No extra files
    - Is the project leaking memory?
- Submitted the YouTube link to perforce?

Hints

Most assignments will have hints in a section like this.

- Dig into the material read the online blogs…
  - Lots and lots of information
- You can discuss the tools and drivers on Piazza
  - Share
- Use the Piazza FORUMs
  - Read, explore, ask questions