SYSC 4907 – Fall 2026/Winter 2027

Supervisor	Yvan Labiche
Co-supervisor	N/A
Course section	E
Project ID	E1
Project title	A multi-platform phone app to learn a music instrument
Project description	Learning a music instrument is difficult and takes time, requiring repeated mundane tasks to get to know how to produce correct notes, possibly how to produce chords. Learning musical pieces is an integral part of the process but knowing how to produce a note or a chord on demand is also important. When learning the guitar, an instructor will ask: give me a D major chord or simply play the note E one octave up. The same applies when learning the piano, the accordion, a wind instrument. It would be convenient for the learner to be able to be asked such questions at home when they practice; a phone app asking random questions appropriate for a specific music instrument, such as the ones above, would be convenient. When the player responds to the request by playing a note or a chord it would then also be convenient if the app were able to judge whether the right note or chord has been played. Or course the app must accommodate different music instruments: instruments do not have the same capabilities. For instance, a piano accordion can play all the musical scales whereas a two-row diatonic button accordion can only play two scales. Instruments can also be somewhat customed. For instance, a three-row diatonic button accordion may be tuned to play three different scales (e.g., A, D, G) or may play two scales (e.g., A, D) and have a custom third row of buttons; A guitar is typically tuned in EADGBE but can also be tuned in DADGAD. This means the design of the app must accommodate alternative instruments, alternative tunings, and should facilitate evolutions to accommodate more than in its original set up. The app must be able to process sounds to recognize notes and chords (major vs minor, three-notes chord vs five-notes chord). This of course also depends on the instrument. Modifiability, evolution, are there key requirements, among others, for the solution. This will necessarily come with proper design. The design will also have to facilitate portability. For instance, one should not have to re-design everything, re-implement everything when initially producing an Android solution and then porting that solution to iOS. For instance, if the application logic of the Android solution is trustworthy, realized for instance through testing, do we need to re-test this application logic on iOS? In essence, verifying the application logic is different from verifying the user interface.
Program(s)	Computer Systems Software
Maximum number of students	4
Meeting time with supervisor (optional)	Weekly
Do you want the student to contact	Yes

you before the office assign this project to them ? (Yes/No)	