NEA Computer Science Proposals:

Webpage

Cloud based website where uses can upload their own music/recordings which are stored on a server. The webpage should include a modern and easy to use graphical user interface, geared towards 20–40-year-olds. Where applicable, YouTube embedded videos should be included, and a simple login system to save favourite tunes and music.

Should be done using API to communicate front end language loading the website with the back end, which will aggregate SQL functions to request data based on user requests.

If possible, encryption software should be done to protect accounts and login details. Also, if possible, a personalised section which will recommend certain music and recordings based on the user’s previous history done through a priority algorithm. (Time spent on certain types of music, how often a category of music is listened to).

Exercise App

Multiuser competitive exercise app that revolves around competing against others in gaining exercise points. It should have an online leader board system to keep track of points of different people and reward people for exercising.

Should include an exercise timer built into the app or embedded YouTube videos for people to follow exercises, which will add more points to the user.

SQL used where appropriate to access and edit data of a user and a leader board.

OOP in creating the user object with attributes such as name, points, age etc.

Ideally, the app could be able to use the location of a device to help track an exercise. (May require a hash algorithm and the Diffie Hellman protocol when exchanging data between a device and a server)

Pygame Student themed Tycoon Game

Single player tycoon game based on the life of a student. It should involve a currency/point system where the student can use their points/currency to purchase new upgrades to increase their productivity in producing more points and currency.

Upgrades will include a vending machine, textbooks, coffee station, sporting events.

OOP to create the user object with details about score, level. Other objects may be the upgrades available as well as the graphical images corresponding to the upgrade that should appear on the screen.

May include a database of the top scores of users and SQL aggregation.