Computer Science - Term **Group** Project 2023

In addition to learning important coding skills and developing a sense for the unlimited potential computers have to solve problems and build cool stuff, this course aims to give you experience of **programming within a group**. Tackling computer science challenges in a **group** helps you in the following important ways:

1. Develop stronger **communication** skills. 
2. Learn the **dynamics** of working effectively within a **team**. 
3. **Learn** programming skills **faster**. 

4. **Engage socially**. 
5. Be **accountable** and **have a purpose** to your work. 

You will complete the following exercise as part of a team of 2-3 individuals. Each week you will have at least one class dedicated to working on this project. The project will be **due: April 29th**. This gives you approximately 5 periods to complete. Depending on the progress and goals of your group, **you may need to work outside of class time**.
Each group will **present their final product on April 29th** to the class. Mr. Walzl will put you in assigned groups. Prizes will be awarded to the best products. Mr. Walzl may or may not steal your ideas and publish them as his own in order to make millions of dollars.

Your task: **Graphic oriented Baseball Game**

You will be asked to create a graphics-based baseball game that should include the following **minimum** requirements:

a) Graphics scenario where a **ball is pitched** on the press of a key and moves along the screen.
b) Another key is used to swing a bat. **If** the bat is swung at the correct time and ball *meets the bat,* the ball will be returned in a random direction and speed. The "swing" must have the bat **rotate** about a single point.
c) A random distance will be achieved. Some scoring system should be indicated.

Note the preceding were the *minimum* requirements. This will only give you 30/60. You're group is attempting to make the **best baseball game you can make.**

You **must** include **two or more** of the following (or other cool features) **for full marks:**

a) Ball will rebound off the bat at an angle that corresponds to the angle the bat was at when it contacted the ball.
b) Have batter be able to control speed of swing.
c) Create a two-player game where the pitcher can also control the speed and vary the angle of the pitch.
d) Use "sprites" to animate the motion of your players.
e) Create a game using the batter perspectives ***shown below,*** where batter can control the timing and height of swing. Pitcher can control speed and position of the pitch. Test out a few a few baseball videogames (like the ones *shown below*) to get ideas on how this might work.
f) Create and include audio for your game…you may have to explore other platforms besides replit.
g) Use Kivy or BeeWare to create a mobile version of your game.
h) Any other cool features you get approved by Mr. Walzl

Marking Scheme:

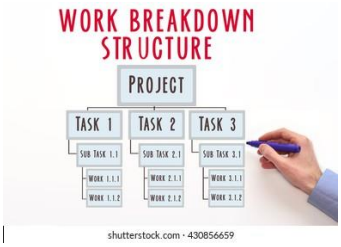
Team worked effectively and ensured significant contributions by each member: **10 marks**
Minimum requirements for game have been met: **20 marks**
Presentation of product organised, clear, informative, professional: **10 marks**
Inclusion of more advanced features of the game: **20 marks**

Bonus:
Scoring is written to an external file. External file is emailed (through python) to players email addresses at the conclusion of the game **5 marks**

Helpful hints for working on coding projects in groups:

1. At the beginning of the project create a systematic way for everyone to contribute, take your time, brainstorm. Go around and let each person speak. Each person should have a turn to give input. Don't judge or critic anyone's initial ideas.

2. Once some ideas appear**, identify goals and problems that need to be solved**. Write these down. **Designate someone as a note taker** who can record ideas, tasks and schedules that are visible and organised for everyone to see.



3. Break the project down in as many smaller tasks as you can and assign them to each member.

4. **Communicate regularly**, check in at the beginning and end of each session (or more frequently) to see where everyone is at. Who needs help? Do changes need to be made? Always refer to and modify your notes/schedule.