Dear Luc Peersman,

My name is Tygo and this is my debriefing that I would like to get feedback on.

The idea is to make a 2D Game that has a bounce element in it. This will be fully created using C++. The reason behind this is that the project will be used as an Intake assignment for BUAS that will be trying to attend in the near future.

Therefore, the project name will be "**MyBuasIntake**".

These will be the technical specifications and libraries that will be used to create the project.

- BUAS Template (Only one small part of this will be used, template is a requirement in the assignment)
- SFML. Sfml is a graphics library that makes it easier to draw graphics on a screen in c++ applications.
- C++, C++ will be the language the game will be written in.
- Visual Studio 2022. This is the IDE (Integrated development environment) that will be used to write the application in.

I have several ideas, if possible I would like to get to know which one you think is the best.

Idea 1:

Super Mario bros.

Super Mario bros is a 2D platformer where the objective is to finish each level. You reach this goal by avoiding and destroying obstacles like enemies and blocks.
The idea is to recreate the first level from the game super Mario bros. The bounce aspect will be present in the shooting of fireballs as fire Mario.

https://www.youtube.com/watch?v=rLl9XBg7wSsD

What will be possible.

- Mario's movement mechanics.
    - Simple jumping mechanic that makes Mario jump if you press a button.
    - Left and right controls that make mario go left and right.
    - Sprint left and right controls that make mario sprint to left and right.
- Mario's power up mechanics.
    - Mushroom powerup that makes Mario bigger and able to take 2 hits.
    - Fireflower powerup that makes Mario able to take 3 hits and shoot fireballs that bounce over the level with a sine movement.

- The Goomba enemy mechanics.
    - Enemy that moves Left and right and reverses direction when hitting a wall.
    - Dies when Mario jumps on its head.
- Tile-based rendering.
- Physics and collision.
    - Basic physics with gravity and collision that stops the player from going through walls.

What might be possible.

- The Koopa Troopa enemy mechanics.
    - Koopa Troopa will turn in to a shell when jumped on.
    - Koopa Troopa shells will be able to be kicked after which they will glide over the level floor and reverse direction upon hitting a wall.
- The UI score and time mechanics.
    - Score will go up when the player picks up coins or kills enemies.
    - Time will count down from x to 0 after which the player fails the level.
- A start screen.
- Mario death animation.
- Basic audio.

What will not be possible.

- This will only contain 1 level.
- The power up UI mechanics.
    - UI mechanic that makes you able to save 1 powerup item

Idea 2:

Wii play tanks.

Wii play tanks is a game that's included in the game Wii Play.
The objective of the game is to defeat all the enemy AI tanks by shooting bullets at them and hitting them. Bullets can ricochet off of walls.

What will be possible.

- Tank movement mechanics.
    - Tank can move in every direction with player input.
- Tank shoot mechanic.
    - Tank can shoot 3 bullets in a short period of time with player input.
    - The tank aims towards the mouse position.
- Basic AI movement for the enemy tanks.
    - The tank can move in every direction decided by an AI state-machine.
- Bullet ricochet mechanic.

    - Bullets ricochet off of walls once when fired.
- At least 5 levels.
- At least 3 different types of tanks.
    - Tank that shoots single bullets.
    - Tank that shoots fast bullets.
    - Tank thta is fast and shoots fast bullets.
- Tile-based rendering.
- Physics and collision.
    - Basic physics with gravity and collision that stops the player from going through walls.

What might be possible.

- A start screen.
- UI elements.
    - Amount of tanks left.
- More advanced AI that gets better over time.
- Basic audio.

What will not be possible.

- More than 10 levels.
- More than 6 types of tanks.

https://www.youtube.com/watch?v=orLxrg51xL8

Idea 3:

A generic 2D platformer.

Generic 2D platformer that is made out of free-to-use assets in a pixel art-style. The level will contain bounce pads or springs that the player can bounce off to go through the level. The character might have a grappling hook mechanic. Tho that is not certain.

What will be possible.

- Movement mechanics.
    - Player can jump when pressing a button.
    - Player can move left and right with input.
- Jump-pad / spring mechanics.
    - The player will bounce off the object upon touching it.
- Basic tile-based rendering.

- Physics and collision.
    - Basic physics with gravity and collision that stops the player from going through walls.
- Basic audio.

What might be possible.

- Special effects.
- Animator.
    - Basic spritesheet based animations.
- Enemies
    - Enemy that moves left to right that you can defeat by jumping on it.
- Grappling hook mechanic.
    - Grappling hook shoots in to the direction the mouse is in.
    - Grappling hook contracts and extends by scrolling.
    - Grappling hook can be shot on every surface.
- Parallax skybox.
    - Moves slower than the foreground to create a depth effect.

What will not be possible.

- More than 3 levels.
- More than 2 enemies.

If the best game idea is decided I will further develop it together with any other feedback that is given.

Making any of those games will require some kind of game engine. These are the C++ engine utilities that have to be created in order for any of the games to be made.

Must have.

- Tile-map/Sprite-sheet rendering
- Color reference mapping (to read things like levels and collider positions etc.)
- Collisions
    - Only AABB Rectangle collisions.
- Basic physics
    - Gravity.
- Input

Might have.

- UI rendering layer.
- Special effects layer.
    - Vignette.
    - Bloom.
    - Color filters.

Will not have.

- 3D Rendering
- Lighting

Planning

This project will take 6 weeks.

Week 1 - 2
Spent on building the engine itself.

Week 2 - 5
Spent on building the game and gameplay

Week 6
Spent on play-testing and polishing.

Note:
All of this information is not final and will be changed accordingly.
If there are any questions, anything you disagree with or any suggestions please let me know.