ASSESSMENT AND INTERNAL VERIFICATION FRONT SHEET (Individual Criteria)

Course	**Advanced Diploma**		Lecturer Name	**NEIL AQUILINA**	
Title			**& Surname**		
Unit Number & Title	**Programming for Computer Games**				
Assignment Number, Title / Type	**Research and Design – Home (24 Hours)**				
Date Set		18/12/2020	**Deadline Date**	**19/12/2020**	
Student Name	Tristan Cassar	**ID Number**	**0259999M**	**Class / Group**	4.2C

	Student's declaration prior to handing-in of assignment:
☐	❖ *I certify that the work submitted for this assignment is my own and that I have read and understood the respective Plagiarism Policy*
☐ ☐	***Student's declaration on assessment special arrangements (Tick only if applicable)*** ❖ *I certify that adequate support was given to me during the assignment through the Institute and/or the Inclusive Education Unit.* ❖ *I declare that I refused the special support offered by the Institute.*

Student Signature:	T.Cassar	**Date :**	**12/18/20**

Assessment Criteria	Maximum Mark	Mark Achieved
KU1: Identify and describe different game engines for different tasks	5	
KU3: Describe file types for media assets	5	
KU4: State the relevance of compression settings in media assets	5	
SE1: Design and specify the details of the game to be developed, including a state machine	10	
Total Mark	25	

Assessor's feedback to student

(If necessary, use reverse side of page for IV feedback on assignment brief / sample of assessment decisions)

	Name & Surname	Signature	Date
Internal Verifier : Approval of a*ssignment brief* ___		For approval signature, please refer to electronic audit trail	
Lecturer / Assessor : Issue of results and feedback to student		For approval signature, please refer to electronic audit trail	
Internal Verifier : Approval of *assessment decisions (Sample)*		For approval signature, please refer to electronic audit trail	

Learner's signature upon collection of corrected assignment.

Assessment Criteria
KU1: Identify and describe different game engines for different tasks
KU3: Describe file types for media assets
KU4: State the relevance of compression settings in media assets
SE1: Design and specify the details of the game to be developed, including a state machine

Unit: IICT4016- Programming for Computer Games

Home Assignment 1: Research and Design (24 hours)

Assignment Submission:

On your Assignment Repository, create a folder *Research and Design* and in it upload:

   a. **Task 1, 2 and 3 as a single PDF**
   b. **Task 4 as a JPG or PNG**

Task 1: Game Engines (KU1) – 5 marks:

Research 5 Game Engines. In point form, and in your own words, for each engine list:

- The Programming Language(s) used in it
- A game programmed using that Engine
- Whether it is a 2D/3D (or both) Engine

RPG Maker: It's programming language is Ruby, the game is Ao Oni and it is 2D.

Unity: It's programming language is C#, the game is Human fall flat and it is both 3D/2D.

CryEngine: It's programming language is C++, the game is Crysis 3 and it is 3D.

Frostbite: It's programming language is C++, the game is Battlefield 4 and it is 3D.

4A Engine: It's programming language is C++, the game is Metro Exodus and it is 3D.

Task 2: File types for media assets (KU3) – 5marks

    a. Choose 3 types of image formats from SVG, JPG, PNG, WEBP, GIF, BMP and explain each image format, in your own words.

Jpg is an image file format that can be compressed.
Png is the most used format that is an uncompressed image format.
Gif is an image file format that supports animation.

    b. Choose 2 types of audio formats from OGG, MP3, WAV, AAC, WMA and explain each format, in your own words.

MP3 is a famous audio file format that can be compressed.
WAV is an audio file format which has high quality audio.

Task 3: Compression in multimedia (KU4) – 5 marks

Research the following in your own words:

    a. The importance of compression in images (100 words)

Compression is when an image file formats can be compressed to reduce the size of the file on the disk while losing quality when being compressed. There are certain image formats that aren't able to be compressed. There are also two compression types that are lossy and lossless. This mean that some lose data and some don't. The images tend to load a lot faster when they are compressed because of the less space they took but if the user tries to enlarge it, it may start becoming pixelated.

b. Explain in detail using diagrams how compression in an audio file works. The diagram must be originally drawn by yourself, and not copied and pasted.

Task 4 – Design using State Diagram (SE1) – 10 marks

For this task you can use *https://app.diagrams.net/* or any other drawing program you like. Save the final diagram as a JPG or PNG and upload on Github as instructed.

Scenario: MCAST Break

The following is a scenario of an Adventure Game. You are to read it carefully and create a State Diagram for it. Different states can be accessed by pressing the Capital Letter of the State in brackets. Each state will give you a description of what you can do:

You wake up in the middle of the night and find yourself in an MCAST classroom on the top floor. The only things to be found are: an old PC with some cables, a table, a broken chair and a door which is locked.

You have to escape and return home before the sun rises up.

You start in a (R)oom. You can go to any of the 4 things found in the Room:
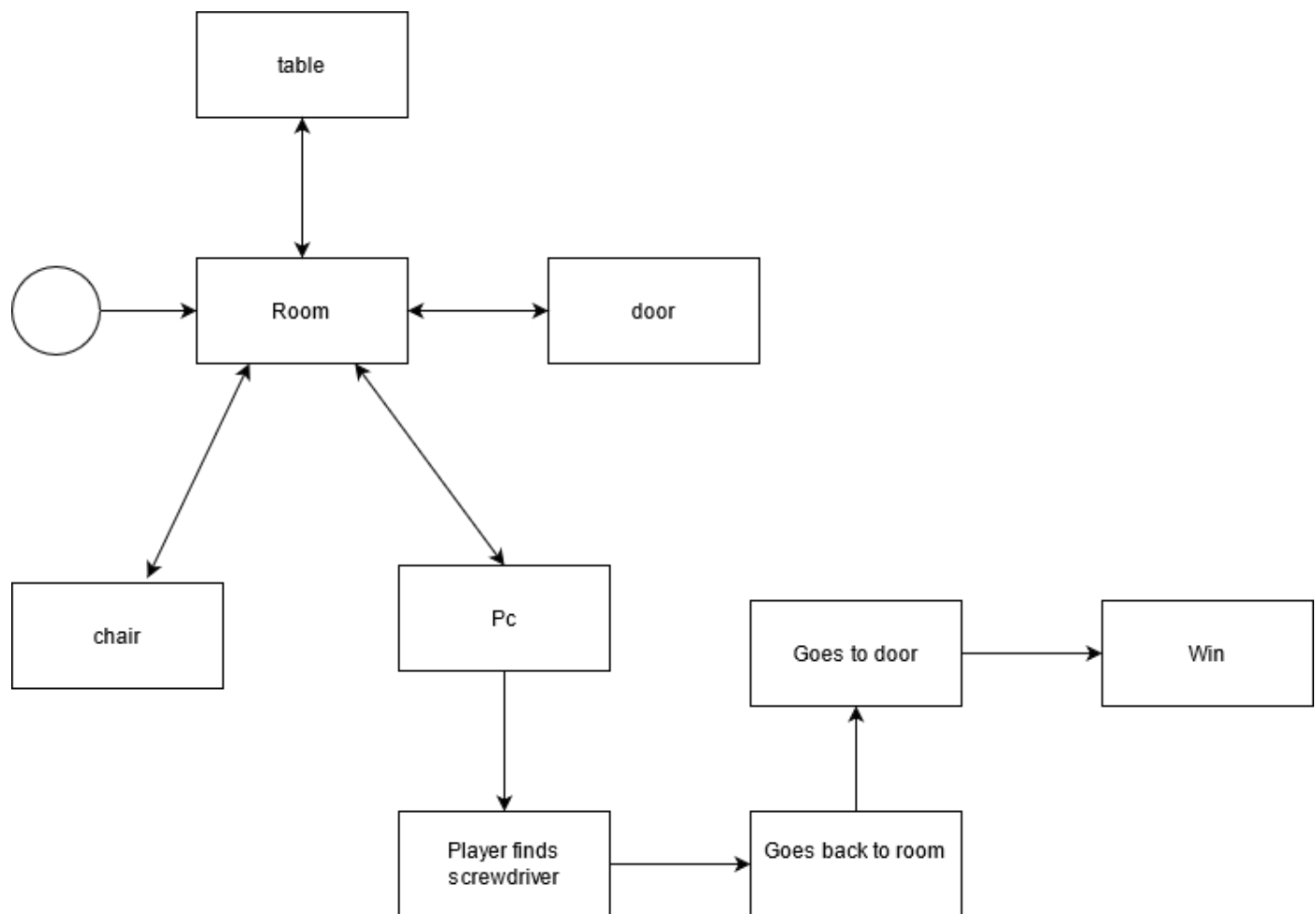
(T)able, (C)hair, (L)ocked Door, (P)C

If you go on the (T)able, the only thing you find is dust! You can return to the (R)oom.

If you go to the (C)hair, you can see a lot of borer holes.

If you search the (P)C closely you can find a number of wires and a small thin Screwdriver. You can take the Screwdriver and go back to the (R)oom or to the (L)ocked Door.

You try your luck and go to the (L)ocked Door and try to pick the lock with the screwdriver and…. voila, the door can now be opened and you are (F)ree to go home.

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                         ┌──────────┐
                         │  table   │
                         └──────────┘
                              ↕
                         ┌──────────┐        ┌──────────┐
          ○ ──────────►  │  Room    │ ◄────► │  door    │
                         └──────────┘        └──────────┘
                          ↙        ↘
              ┌──────────┐      ┌──────────┐
              │  chair   │      │   Pc     │
              └──────────┘      └──────────┘
                                     │
                                     ▼
                           ┌───────────────┐       ┌─────────────────┐       ┌──────────────┐
                           │ Player finds  │ ────► │ Goes back to    │ ────► │ Goes to door │ ────► │ Win │
                           │ screwdriver   │       │ room            │       │              │
                           └───────────────┘       └─────────────────┘       └──────────────┘
```

table

Room   door

chair   Pc

Player finds screwdriver   Goes back to room   Goes to door   Win

Assignment Rubric:

Criteria and tasks	Marks
KU1: Identify and describe different game engines for different tasks	
For 5 Game Engines list:	5
The Programming Languages used in it	
A game programmed using each Engine	
2D/3D Engine	
KU3: Describe file types for media assets	
Explain 3 image formats	3
Explain 2 audio formats	2
KU4: State the relevance of compression settings in media assets	
Research the importance of compression in images	2
Explain in detail using diagrams how compression in an audio file works	3
SE1: Design and specify the details of the game to be developed, including a state machine	
Create a good State Diagram for the scenario	5
All states must be listed in the State Diagram	2
All triggers must be correct in the State Diagram	3
TOTAL MARKS:	**25**