BSc/HND Games Programming

CSY2059 Native Programming & Compilation – AS1

Date of Issue:	**05/10/2020**	Date for Submission:	**17/01/2021**
Agreed Date for late submission:	**24/01/2021**	Module Tutor:	David Nicholls
		Signed:	*D Nicholls*
Student Name:			
Student ID:			

Student's Signature:	
Name of Game	A Game for a Console Released Before 2004

This assignment is weighted as 50% of the Module's assessment

Assessment Feedback

Aspect	**A**	**B**	**C**	**D**	**F**
Compilers Types (15%)					
Compilers History (10%)					
Native Console Development (10%)					
Pseudocode & Planning (10%)					
Implementation of Game Development (15%)					
Evaluation (5%)					
Report Presentation. (Format, Layout, Grammar, Syntax, Spelling) (10%)					
Extras (5%)					
Midpoint Demonstration (5%)					
Final Demonstration (15%)					

Specific aspects of the assignment that the marker likes:		Specific aspects of the assignment that need more work:			
Tutor's Signature:	*D Nicholls*	Date:		Grade:	

The University of Northampton's Policy on Plagiarism & Mitigating Circumstances will be strictly implemented. By submitting this **signed** assignment; you are asserting that this submission is entirely your own individual work.

BSc/HND Games Programming
CSY2059 Native Programming & Compilation
Compilers in Game Development

Aims & Objective:
Development environments for games have massively changed over game development's history. The purpose of this assignment will be to show evidence of how compliers work and to utilize native programming platforms for older game consoles.

Brief:
You have been tasked to develop a game for a console released before 2004.

The game type and console of choice is completely up to you, but it should showcase your understanding of the language for that console and all tools you have researched. You will utilize the native programming language for the console via emulation methods.

Individually: Design and program a "**Game Level**" with use of native programming methods for a pre-2004 console via emulation (or authentic methods if you are able). See full requirements below. Also, **write a report within academic standards** which in individual sections completes all the **Assessment Aspects**.

Tasks:

1. *Research and describe different compilers types with an analysis of their strengths and weaknesses*
   - To achieve a **"D"** grade; you will have basic descriptions of different compiler types with minimal discussion.
   - To achieve a **"C/B" grade**; your work will have a satisfactory explanations of different compiler types with some specific examples. Some strengths and weaknesses expressed.
   - To attain a **"A" grade**; you will have a comprehensive discussion on compilers. In your work there will be many specific examples with diagrams where appropriate. Your research will have references to accredited sources. You will have discussed compilers in a game development environment with consideration to many types of game platforms.

2. *Research and explain a history of compilers with relation console game development*
   - To achieve a **"D"** grade; your coverage of the timeline will be brief, with few specific examples. The written work here will be very descriptive with little discussion of analysis.
   - To achieve a **"C/B" grade**; there will be key industry changing factors mentioned and discussed. From these discussions there will be satisfactory explanations about their impacts to console game development. There will be some discussions on the game theme.

- To attain a **"A" grade**; you will have a comprehensive history of how compliers and programming languages have evolved. Important developers and stakeholders will be mentioned and specific examples with references to research and/or statistics will be present. A reflection on how this has changed for better or worse will be present.

3. *Research and evaluate console native console development for select examples of pre-2004 consoles*
    - For a **"D" grade;** you will have looked a single example of console development for a game console. There will be some analysis here but it will be mostly descriptive explanation of how to develop for the console.
    - To achieve a **"C/B" grade;** you will have looked at a minimum of 2 examples of specific console development. There will be explanations of the tools both from the era and how you may emulate them now. There will be a comparison from each with conclusions that are reasoned.
    - To attain a **"A" grade;** the work will have looked at 3 different console development tools for native development for that platform. You will have looked at how games were developed for the console at the time, and the tools available to emulate the processes today. There will be a constructive comparison which will inform your development processes for your project.

4. *Game development planning including pseudocode, game system diagrams and a game overview*
    - Around a **"D"** grade the pseudo code will show planning for areas of the code. A brief overview of the game will be completed.
    - For an **"A"** grade this will cover all code in pseudo code. There will be a comprehensive overview of the game and there will be mock ups of the game.

5. *Develop a game based on the requires of the brief.*
    - See "Deliverables - Games Requirement" below.

6. *Evaluation of final game and development*
    - For around a **"D" grade** a very basic evaluation would be produced. Your language would be very descriptive will only small amounts of reflective language.
    - For around a **"C / B" grade;** your work will have some reflective language on your game. There will be some discussion on how to improve both and what went well with each. There will be some discussion on the development processes compared to modern game development environments.
    - For an **"A" grade** an excellent evaluation would be supplied. There will be clear discussion on any issues that had been encountered and how you may overcome these in the future. There will be considerations into your development with the tools you have selected compared to modern game development environments.

7. *Report presentation.*
    - For around a **"D" grade** the report will have a simple layout and frequent spelling and grammar errors. Little terminology used.
    - For an **"A" grade** the report would be of a professional standard, which is both readable and well structured. The formatting of the report will be clear and

professional. Terminology used where appropriate and formal language is present. All references and citations are correct and are from appropriate sources.

8. *Midpoint Demonstration.*
    - For around a **"D" grade** the midpoint demonstration would be very basic. There is little progress on your game, you will have some idea on what console you will be developing for.
    - For an **"A" grade** a good, clear demonstration will be shown. This will include strong evidence that you have planned your assignment. You will have decided what game console you will be developing for and you will have investigated what tools are available and can demonstrate them. There will be some experiments with development tools.

9. *Final Demonstration.*
    - If you do not attend this demonstration you will be awarded an overall **F+ grade** for this assignment.
    - For around a **"D" grade** you would give a basic demonstration, which does not show you fully understand how the game works. You would also struggle to explain what some of your code is doing. Some of the games code also contains errors/missing code, which means that the game either does not run or does not function correctly.
    - For a **"C"/"B" grade** you can give a good demonstration, showing an understanding of how the game works. You can also explain any additional features that you have added (even if they have failed to work). Any errors still found in the code can be explained to why they do not work.
    - For an **"A" grade** you would show an excellent understanding of how the game works. You will be able to demonstrate a number of additional features and understanding of how they work, and also explain how things in the game could be improved.

Deliverables

Game Requirements:

Basic Game

- Minor interactivity
- Basic movement

A Satisfactory/Good Game

- Same as basic but also including...
- Multiple interactive elements
- Scoring, Time limit, health or lives etc

An Excellent Game

- Same as Satisfactory/Good but also including...
- A Menu
- Some win/fail condition

- More complex gameplay (enemies, attacking, etc)

Milestones:
On the midpoint date you should be able to demonstrate where you are at within the project to gain 5%.

Midpoint Demo	During the Practical	**09/11/2020**	Attempts at Tasks: 1,2,3,4,5,8	5%
Demo	During the Practical	**11/01/2021**		15%
Submission	Electronic submission through NILE	**17/01/2021 at 23:59**	One ".zip" file which to include: a) The full report b) a copy of the game.	80%

IF the final demo is missed the final grade will be capped at F+

The report needs to be submitted electronically through NILE. You are also required to upload one ".zip" file which to include: a) The full report, b) a copy of the game.

Grading Criteria:
The Standard Front Sheet gives a clear indication of how the grade for this assignment is achieved. In general the following criteria will act as a guide to what you should expect:

A bare pass (D) will:
- A very limited attempt has been made at most tasks.
- A very basic game has been made, with limited gameplay.
- A basic final demonstration.
- A basic report with poor formatting.

A good pass (B to C) demonstrates:
- An attempt at all tasks.
- A game made meeting Satisfactory/Good standard (this could include 1 or 2 smaller "bugs").
- A good demonstration.
- A well written report.

A very good pass (A) shows:
- All tasks are attempted with a high level of detail.
- A game has been developed close to a standard required for public release.

Learning Objectives
This assessment corresponds to the following "Learning Objectives" as detailed in the "Module Specification" document:

Knowledge & Understanding: a, b
Subject Skills: e
Key Skills: g, f