Lab 7 – Debugging

Fork and clone the projects for Git Hub <https://github.com/Abertay-University-SDI/CMP105_W7> . This repository contains a collection of small programs that suffer from some compilation or runtime errors and need fixing.

1. Starting with application Week 7\_1, the application contains a player object that teleports to a random location when the *space bar* is pressed, and an enemy object that teleports to a random location after a set amount of time. However, the application does not compile successfully. You must find and fix the error, in the box below write down what the error was and how you found it (what debugging steps did you take, what information was useful).

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| The simple error lines and messages helped me, I took a quick look around the classes and found that the enemy class’ header file had no semi colon after it, which the error line and message pointed me toward. |

1. The application Week 7\_2, this application contains a player object that teleports to a random location when the *spacebar* is pressed, and the player contains a bullet object that spawns at the player’s location and fires when the *Enter* key is pressed. However, the application does not compile successfully. You must find and fix the error, in the box below write down what the error was and how you found it (what debugging steps did you take, what information was useful).

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| The compile error led me to replicate what I done for task 1, I looked through each class and found a simple syntax (a colon was missing from the end of “private” in the player class header.). I fixed and it compiled, but it did not perform like the description states it will, so I fixed that too. |

1. Application Week 7\_3 is similar to 7\_2, however this application compiles, but suffers from a runtime error. You must find and fix the error, the fixed application should have a player the teleports and shoots several bullets. In the box below write down what the error was, how you found it (what debugging steps did you take, what information was useful) and how you would fix it.

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| I looked around and saw that in the player .cpp it said bullet was not initialised, so I looked into this further by adding a breakpoint to the first line that used bullet in player.cpp, and sure enough it said it couldn’t run due to it being a null pointer. I initialised the pointer in the constructor of player to fix it. The info that was useful was the player class as a whole, it let me see what the poinbter was doing and where it initially was declared ect… |

1. Application Week 7\_4 contains a player and bullet objects. This application compiles but suffers from a runtime error. You must find and fix the error, in the box below write down what the error was, how you found it (what debugging steps did you take, what information was useful) and how you would fix it.

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| Thanks Paul! The problem was a null pointer, it was declared in a function and so its scope was local. When the function was finished the pointer was wiped from memory because it thought it wasn’t needed anymore. I declared the variable that was being pointed to cover the whole class so it didn’t get wiped outside the function. I used, error messages, breakpoints to watch variables and their values locally. The info that was useful was some tips off the internet and the values that variables and pointers were holding at specific points. Try and implement a delete for the pointer in the destructor but right now there is no need. |

1. Application Week 7\_5 contains a player object and a companion object. The player object teleports around the level when *spacebar* is pressed. The companion will teleport to the player object when the *Enter* key is pressed. This application has a compilation error. You must find and fix the error (and make sure the application runs correctly), in the box below write down what the error was, how you found it (what debugging steps did you take, what information was useful) and how you would fix it.

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| Erin’s hint “problem is player and companion including each other”. |

1. Application Week 7\_6 contains several *Bits*; small sprites that are given a random position and move up and down from the position. This application compiles but suffers from a runtime error. You must find and fix the error, in the box below write down what the error was, how you found it (what debugging steps did you take, what information was useful) and how you would fix it.

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1. Application Week 7\_7 should render a simple yellow game object near the centre of the window, but it doesn’t. You must find and fix the error, in the box below write down what the error was, how you found it (what debugging steps did you take, what information was useful) and how you would fix it.

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Make sure you show/discuss your answers with a member of staff once completed.

1. The coursework brief is on My Learning Space, under the Assessment tile. Read over the brief and write down a rough outline/design for you coursework game idea. Think carefully and write down how you game meets each of the coursework requirements.