THIS IS A PROCTORED PRACTICAL

YOU MUST SHARE YOUR SCREEN SO YOUR PARTICIPATION IN THIS PRACTICAL

CAN FULLY INVIGILATED

1. Create a Github repository "Assembly\_and\_C"
2. Create a sub directory PRACTICAL\_##
3. Add Github link to CA Spreadsheet

e.g [https://STUDENTID.github.com/Assembly\_and\_c/PRACTICAL\_##](https://studentid.github.com/Assembly_and_c/PRACTICAL_#)

1. Invite Lab Supervisors including **MuddyGames** as a collaborators
2. Go to designated group to complete practical
3. Upload completed Practical files to Github repository

Create a unique file ***e.g. practical\_##\_part#.c*** or ***practical\_##\_part#.asm*** for each practical section below.

Clone <https://bitbucket.org/MuddyGames/assembly-and-c-x86_64/src/master/>

Linux VM [https://comp-vcentre.itcarlow.ie](https://comp-vcentre.itcarlow.ie/)

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| **3** | Create a new directory and |  |

**Objective** Understand and utilise x84 Assembly Instructions

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| **1** | Create a new directory and name ***practical\_09\_part1.***      This is a clone of **starterx32** directory    Program, edit compile and execute code to perform activities => | 1. Open terminal in Visual Studio Code 2. Perform a make | |
|  |  | 3. | Run binary produced |
|  |  | 4. | Modify output string so that it outputs  “Assembly and C” |
|  |  | 5. | Note registers used |
| **2** | Create a new directory and name ***practical\_09\_part2.***    This is a clone of **starterx64** directory    Program, edit compile and execute code to perform activities => | 1.  2.  3. 4.  5. | Open terminal in Visual Studio Code  Perform a make  Run binary produced  Modify output string so that it outputs  “Assembly and C”  Note registers used |

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|  | name ***practical\_09\_part3.***    This is a clone of **starterx32** directory    Debug binary produced in  ***practical\_08\_part1***    Program, edit compile and execute code to perform activities =>    For full list of [GDB](https://bitbucket.org/MuddyGames/assembly-and-c-x86_64/src/master/README.md)  [Commands](https://bitbucket.org/MuddyGames/assembly-and-c-x86_64/src/master/README.md) | 1. Open terminal and issue following command     **gdb StarterKitx32 -tui**     1. Set a breakpoint     **break \_start**     1. Run binary     **run**     1. Step through using     **nexti**    AND    **next**    commands, observe difference     1. Rerun StarterKitx32 using     **run** command     1. Examine register values using     **layout reg** command     1. Examine register values using e.g.     **info registers eax** **i r eax**  **info all-registers**  commands |
|  |  | 8. Take screenshots of each step and add to ***practical\_09\_part3*** directory |
| **4** | Create a new directory and name ***practical\_09\_part4.***      This is a clone of **integrationx32** directory    Program, edit compile and execute code to perform activities => | 1. Modify main.c and add.asm so that the method takes 3 arguments     **extern int add(int a,int b,int c);**     1. Compile run as check validity of code      1. Create and new assembly file which subtracts one number from another     **extern int sub(int a, int b);**     1. Modify make file to include the new assembly file sub.asm      1. Compile run as check validity of code |
| **5** | Complete Practical Quiz which will be provided by Lab Supervisor | |

**Demonstrate completed assembly files at the end of the LAB and ensure it has been checked**

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| **Student Name** | **Brandon Jaroszczak** | **Student Number** | **C00296052** |
| **Date** | **31/3/2025** | **Checked** |  |