

# CPSC 240: Computer Organization and Assembly Language

## Assignment 06, Fall Semester 2025

CWID: \_\_\_\_\_ Name: \_\_\_\_\_

### Quiz Questions:

From the textbook "X86-64 Assembly Language Programming with Ubuntu," study quiz questions 4 and 5 of Chapter 9. Students do not need to submit answers to the quiz questions as they are found in Appendix D of the textbook.

### Programming:

1. Download the "CPSC-240 Assignment06.docx" document.
2. Select one of the following methods and convert its C/C++ variable declarations and instructions to x86-64 assembly language to calculate the sum of "1+2+3+...+99" and displays the result in a terminal window. **NOTE: variable sizes and program functions should be equivalent to C/C++ instructions.**

#### Method 1:

```
int main(void) {  
    Calculates 1+2+3+...+99 and displays the result in a terminal window  
    char str1[] = "1+2+3+...+99=";           // use db to declare 8-bit string array  
    short sum = 0;                           // use dw to declare 16-bit variable  
    char ascii[5] = "0000\n";                // use db to declare 8-bit string array  
    register short cx = 1;                   // no need to declare register cx  
    for(cx=1; cx<=99; cx++)  
        sum += cx;  
    ascii = itoa(sum);  
    cout << str1 << ascii;  
    return 0;  
}
```

#### Method 2:

```
int main(void) {  
    Calculates 1+2+3+...+99 and displays the result in a terminal window  
    char str1[] = "1+2+3+...+99=";           // use db to declare 8-bit string array  
    int sum = 0;                             // use dd to declare 32-bit variable  
    char ascii[10];                          // use db to declare 8-bit string array  
    register int ecx = 1;                    // no need to declare register cx  
    for(ecx=1; ecx<=99; ecx++)  
        sum += ecx;  
    ascii = itoa(sum);  
    cout << str1 << ascii;
```

```
    return 0;  
}
```

3. Save the source code to “print.asm”, assemble the "print.asm" file, and link the "print.o" file to get the "print" executable file.
4. Run the "print" file to display the conversion results of **ascii** in Terminal window.
5. Insert source code (print.asm) and simulation results (Terminal window) at the bottom of the document.
6. Save the file in pdf format and submit the pdf file to Canvas before the deadline.

[Insert print.asm source code here]

[Insert print simulation result (Terminal Window) here]

[Insert the simulation result verification here]