# Merrik Wright CS410

# CS 410 Project One Proficiency Test Template

## Explain the functionality of the blocks of assembly code.

### “main” function”

| **Assembly Code Block** | **Explanation of Functionality** |
| --- | --- |
| push %rbp | Save the base pointer for current stack frame. |
| mov %rsp, %rbp | Set up a new base pointer for the stack. |
| lea ..., %rsi lea ..., %rdi | Load parameters for the first function call. |
| callq ... | Call a function with the loaded arguments. |
| mov %eax, 0x0(%rip) | Store return value from the call. |
| mov 0x0(%rip), %eax | Load a value back into the register for comparison. |
| cmp $0x1, %eax | Compare value to 1. |
| je ... | If equal, jump to the matching case (value = 1). |
| cmp $0x2, %eax je ... | Check if value is 2, jump if so. |
| cmp $0x3, %eax je ... | Check if value is 3, jump if so. |
| mov $0x0, %eax pop %rbp ret | Return from the function, clean up. |

### ChangeCustomerChoice function

| **Assembly Code Block** | **Explanation of Functionality** |
| --- | --- |
| push %rbp  mov %rsp, %rbp | Set up stack frame. |
| lea ..., %rsi  lea ..., %rdi | Load arguments for a function call. |
| callq | Call initial setup function. |
| cmp $0x1, %eax  je ... | If input is 1, jump and store it. |
| cmp $0x2, $0x3, $0x4, $0x5 | Check each option. |
| mov %eax, 0x0(%rip) | Save selected option. |
| ret | Return after updating the value. |

### CheckUserPermissonAccess Function

| **Assembly Code Block** | **Explanation of Functionality** |
| --- | --- |
| push %rbp  mov %rsp, %rbp | Set up stack frame. |
| xor %eax, %eax | Clear out the return register. |
| lea ..., %rdi  callq | Prepare and call input-checking function. |
| cmp ..., -0x44(%rbp)  jne ... | Compare permission check result. |
| mov $0x1 or $0x2 to %ebx | |  | | --- | |  |  |  | | --- | | Set permission flag based on result. | |
| mov %ebx, %eax  ret | Return access level. |

### DisplayInfo Function

| **Assembly Code Block** | **Explanation of Functionality** |
| --- | --- |
| push %rbp  mov %rsp, %rbp | Set up stack frame. |
| lea ..., %rsi  lea ..., %rdi  callq | Load and call multiple display functions. |
| mov ..., %rax  mov ..., %rdx | Load values into registers. |
| mov %eax, %esi  mov %rdx, %rdi  callq | Final data move and display call. |
| ret | Exit the function after output. |