# **CS 410 Assembly to C++ Activity Template**

Step 1: Convert the assembly code into C++ code.

Step 2: Explain the function of the converted C++ code.

| **Assembly Code** | **C++ Code** | **Explanation of Functionality** |
| --- | --- | --- |
| movl −8(%rbp), %eax sall $3, %eax subl $3, %eax movl %eax, −4(%rbp) | Int a,b;  b = b\*3;  b = b -3;  a = b; | Place the value of rbp to eax  Shifts the value stored(could be +8)  Subtract 3 from eax  Move value from eax 4 from rbp |
| movl −8(%rbp), %eax sall $2, %eax subl $1, %eax leal 7(%rax), %edx testl %eax, %eax cmovs %edx, %eax sarl $3, %eax  movl %eax, −4(%rbp) | Int a,b;  b = b+2;  b = b-1;  b = b/7;  a = b; | Place the value of rbp to eax  Shifts value 2 bites  Subtract from eax  Adds 7 to rax and stores in edx  Checks positive or negative  Value from edx is moved to eax  Shifts value right 3 bits  Places value from eax to rbp |
| movl −8(%rbp), %eax leal 7(%rax), %edx testl %eax, %eax cmovs %edx, %eax sarl $3, %eax movl −8(%rbp), %edx sall $2, %edx addl %edx, %eax  movl %eax, −4(%rbp) | Int a,b;  b = b/7;  b = b+4;  a =b; | Place the value of rbp to eax  Adds 7 to rax and stores to edx  Checks positive or negative  Edx is moved to eax based on range  Shifts value to the right 3 bites  Sets rbp to edx  Adds edx to eax  Moves eax to rbp |