

Assembly Programming HW2

Assembly Programming (CSE3030)

(Spring 2021)

17th May, 2021

Instructor: Prof. Youngjae Kim

In this homework assignment, students will have to program three tasks. Please carefully read each task and program in assembly language.

Task I

Write a program that transforms given positive integer (septenary number) (양의 정수) (7 진수) into an decimal number (10 진수). Since we did not learn the input function, you have to declare a specific variable var1 for the septenary number. After calculating decimal number, then insert that in to the EAX. At the end of your code, use DumpRegs function to check the EAX value. The following figure shows you the var1 format. (Other numbers will be used instead of 65 when scoring.)

var1 BYTE "65", 0

Assumption: Input values will be represented as 32-bit unsigned integers when converted to decimal number. (입력 값은 10 진수로 변환을 했을 때 32 비트 unsigned number 로 표시될 수 있는 값이 입력된다고 가정한다.)

Task II

Write a short program that calls the procedure and displays the produce. (Assume that the produce is never larger than 32 bits.) This is a fairly challenging program to write. One possible approach is to use a loop to shift the multiplier to the right, keeping track of the number of shifts that occur before the Carry flag is set. The resulting shift count can then be applied to the SHL instruction, using the multiplicand as the destination operand. Then, the same process must be repeated until you find the last 1 bit in the multiplier.

NOTE

- If use operations other than shift and addition, you will get 0 point.
- Get User input as Input as a hexadecimal.
- Print the result as a hexadecimal.
- below example shows the $21 * 500$.
- Input 'Enter' character (<ent>) to finish the program.

```
C:\W>s171234↵
Enter a Multiplier : 15
Enter a Multiplicand : 1F4
Produce : 00002904
Enter a Multiplier : ↵
Bye!
C:\W>
```

Task III

Make a program that takes a string and a word as inputs from the user and searches the word in the string. If a word is in the string, delete it from the string. If it finds the word in the string, it prints "Found", else it prints "Not found". Note that it is not searching for the matching characters but searching for the corresponding word. For example, suppose a string is "I am a teacher." and a word for search is "tea". Now the string has four words; I, am, a, teacher. Now the searched word, "tea" is not there. So, your program has to say, "Not found".

An example for your program is shown in below box.

NOTE:

1. The string length does not exceed 40 characters.
2. 'Enter' character (<ent>) is not counted in string length.
3. If input string is larger than 40 characters, ignore the string and get input again.
4. You can freely define procedures in your convenience.
5. Input 'Enter' character (<ent>) to finish the program.

```
C:\W>s171234↵
Type_A_String: I like MUSIC.↵
A_Word_for_Search: MUSIC↵
Found
Changed : I like
Type_A_String: I am a student at Sogang University.↵
A_Word_for_Search: teacher↵
Changed : I am a student at Sogang University.↵
Not found
Type_A_String: I am a student at Sogang University.↵
A_Word_for_Search: stud↵
Not found
Changed : I am a student at Sogang University.↵
Type_A_String: I like MUSIC.↵
A_Word_for_Search: MUS↵
Not found
Changed : I like MUSIC.↵
Type_A_String:↵
Bye!
C:\W>
```

Submission:

- Submission Due Date: 05/31 (Mon) 11:59 PM (Late : -10% per day, up to 3 days)
- You need to submit compressed **three code files**, each corresponds to each task.
- Name the .asm files with the last 6-digits of your student id and an underscore ('_') and the number of the task. (e.g. **201234_1.asm, 201234_2.asm, 201234_3asm**)
- Compress source code files into **zip format** and name it with your last 6-digits. (e.g. 201234.zip)
- Please submit your assignment under **HW2** in Assignment menu in Cyber Campus.

Grading Policy:

- If there is an assemble error, you will get 0 point.
- You will get minus one (-1) point for each wrong file name.
- Your program will be tested with different keys and texts.