

CS2310 Computer Programming Assignment One (2020-21 Sem. A)

Deadline: **10-Oct-2019 23:59** (Week 6 Sat)

No Late submission will be accepted

Problem description

In this assignment, students will write a program to convert a decimal number to a specified number base.

- The program first prints **"Input the number in decimal:"** and reads an integer from keyboard. Students may assume that the input is always integer (no floating point or character), however the program should reject negative number as indicated in the sample input / output in the next session.
- Then the program should read in the **base** to convert to. Again, the input is guaranteed to be an integer, however, the program need to check the value and reject any number outside the range **2..16** inclusive.
- Digits in base 11~16 may be larger than 9. Such digits should be represented by (uppercase) **A** (10) to **F** (15).
- This assignment does not assume students know loops/iterations in C++. Therefore if the converted output number is longer than 4 digits, it should be rejected (as shown in the sample input / output).
- Finally the program should print the output inside a rectangular box containing the **'#'** symbol. The size of the box should be just enough, PASS would consider program output with excessive **'#'** or spaces incorrect. Similarly, if the spelling or spacing of messages do not match the sample input/output, PASS would consider that incorrect as well.
- Numbers should be displayed in the simplest form (i.e. no unneeded 0 prefix).

Sample Input / Output:

(for demonstration purpose, user input colored in *blue*)

<pre>Input the number in decimal: 7 Input the base to convert to: 2 Answer: ##### # 7 in decimal is 111 in base 2 # #####</pre>	<pre>Input the number in decimal: 1234 Input the base to convert to: 2 Error: Number too large</pre>
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Input the number in decimal: -1 Error: Input cannot be negative	Input the number in decimal: 123 Input the base to convert to: 22 Error: Base must be 2..16
Input the number in decimal: 15 Input the base to convert to: 16 Answer: ##### # 15 in decimal is F in base 16 # #####	Input the number in decimal: 12 Input the base to convert to: 8 Answer: ##### # 12 in decimal is 14 in base 8 # #####

Marking criteria

Submitted program will be tested repeatedly with PASS. Marks will be graded objectively based on the number of correct outputs reported by PASS.

- If the program is not compilable, zero mark will be given.
- Make sure that the output format (spelling, spacing...etc) follows *exactly* the sample output above otherwise PASS will consider your answer incorrect. Note that the marker will make NO manual attempt to check or re-mark program output.

Unlike tutorial exercises, for assignment, PASS will NOT make ALL test cases visible online. (*i.e. there are hidden test cases*). You should not assume that the report generated from the “Test” button is your final result.

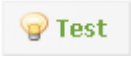
Note that the marking in PASS is automatic, therefore the following situations may lead to extremely low or zero marks:

- Submission of non **.cpp** files (*e.g. .exe or .zip files*)
- Submission with the “**test**” function rather than the “**submit**” function
- Input/output does not match the requirements as defined.
(e.g. incorrect spacing, incorrect spelling, letter cases or punctuations)

Please also note that the PASS plagiarism check will also be turned on during assignment marking. The same penalty will be applied without distinguishing which one is the source / copier. Please safeguard your files if you work on your assignment using public computers (e.g. CityU Lab)

4. Testing and Submission

Students should submit their C++ programs to PASS before the deadline. **No other submission method (e.g. hardcopy, email...etc) is accepted.** Students may use whatever IDE/compiler for development, but programming using non-standard, platform specific features (which is not compilable in MS Visual Studio) will lead to zero mark. The marker will make no attempt to fix the syntax error and make the code compilable.

It is advised that students test the programs with PASS (*using the  Test function*) before final submission (*with the “submit” button*). Be warned that the system could be extremely busy and may become sluggish in responding near deadline. Only **.cpp** files are accepted. Do not submit **.obj** , **.exe** or any other files.

To protect yourself, it is advised that you write down your particulars (full name, student number, eid...) in the beginning of your source code *as comment*.