COE 205 Computer Organization & Assembly Language – Fall 2004

Assignment 3: Conversions, Loops, and Conditional Jumps

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Due Date: Monday, November 1st, 2004

Q1. (10 pts) Write an assembly language program to accept a number in hexadecimal form and display the decimal equivalent of the number. A typical interaction of your program is shown below, where user input is shown in bold:

```
Enter number in hex (max 4 digits): A10F
The decimal equivalent of A10F is 41231
Repeat program (Y/N)? n
```

Make sure to validate user input. For example, if the user enters any character other than **0** thru **9** and **A** thru **F** then do not echo and do not accept the character. Similarly, the program should only accept **Y**, **y**, **N**, and **n** as valid answers for repeating. Other characters should not be echoed.

Q2. (10 pts) A palindrome is a string that reads the same forward as well as backwards. Examples of palindromes are "noon" and "mom", while "house" is not a palindrome. Write an assembly language program that reads a string of characters, reverses it, and then display whether it is a palindrome or not. Here is a typical run:

```
Enter a string (max 20 chars): horse
The reverse is: esroh
horse is not a palindrome
Repeat program (Y/N)? y
Enter a string (max 20 chars): noon
The reverse is: noon
noon is a palindrome
Repeat program (Y/N)? n
```

Make sure to document your code and make it as readable as possible. 20% of the mark will go to documentation and readability and 80% will go to correctness. Put the source and executable files of each program in a separate folder. Call these folders A3Q1 and A3Q2, for assignment 3 questions 1 and 2, respectively. Write your name, your id, and the date, the objective of the program, the input, and the output at the beginning of each program. Submit both programs on a floppy disk along with a hard copy at the beginning of class time.