

# COE 205 Computer Organization & Assembly Language – Fall 2005

**Assignment 4:** Conversions between the Hexadecimal and Decimal Number Systems

**Professor:** Muhamed Mudawar

**Due Date:** Saturday, November 19, 2005

**Objectives:** Converting character digits to binary format and vice versa  
Using division to accomplish conversion  
Using conditional jumps and writing loops

**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 8 digits): A10F  
The decimal equivalent of A10F is 41231  
Repeat program (Y/N)? n
```

Read the input character by character. 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 nor accepted.

**Q2.** (10 pts) Write an assembly language program to accept a number in decimal form and display the hexadecimal equivalent of the number. A typical interaction of your program is shown below, where user input is shown in bold:

```
Enter number in decimal (max 9 digits): 41231  
The hexadecimal equivalent of 41231 is A10F  
Repeat program (Y/N)? n
```

Read the input character by character. Make sure to validate user input. For example, if the user enters any character other than **0** thru **9** 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 nor accepted.

## Documentation and Grading

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. Write your name, your id, the date, the objective of the program, the input, and the output at the beginning of each program.

## Submitting Programming Assignments

Submit **the source and executable files** of each program. Name them as A4Q1 and A4Q2 respectively. **All submissions should be made through WEBCT** on the due date by **11 pm**. Late programming assignments will be accepted, but 10% of the grade will be deducted for each late day for a maximum of 5 late days. Assignments which are later than 5 days will NOT be accepted.