

COE 205 Computer Organization & Assembly Language – Spring 2005

Assignment 4: Conversions between the Hexadecimal and Decimal Number Systems

Professor: Muhamed Mudawar

Due Date: Tuesday, April 5, 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 midnight. 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.