**Assignment #4**

1) [80 points] There is an old story about a student who was offered a consulting job, but had to make a decision on how to be paid. The student could accept a straight $10/hour or take 10 cents for the first hour, but have the hourly wage double each hour. That is, the student would make $.10 for the first hour, .20 for the second hour, .40 for the third hour etc.

The doubling effect makes the wage grow pretty fast, so if you were planning on working for very many hours, the second option is the best. However if you are only working a few hours the $10/hour adds up fastest.

Write a program that will help you make a decision. Your program should have three options:

1) calculate the $10/hr earnings for a user specified number of hours, 2) calculate the earnings for a given number of hours if you chose the $.10 /hour that doubles each hour or 3) Exit.

Assume that for either method you only get paid for whole hours worked.

In other words, don’t calculate wages for 10.5 hours, only whole hours count.

Your program should continue to run until the user enters an option 3.

Create a menu of choices as shown below, and take input from the keyboard where required.

A sample output is shown below:

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Menu

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1) Calculate earnings at $10.00/hr

2) Calculate earnings at $.10 doubled each hour

3) Exit

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1

How many hours? 10

You will earn $100.00

2

How many hours? 10

You will earn $102.30

NOTE: Here are the answers in total earnings:

hour: method 1 method2

1 $10 $.10

2 $20 $.30 (.10 for 1st hr + .20 for 2nd hr)

3 $30 $.70 (.10 for 1st hr + .20 for 2nd hr + .40 for 3rd hr)

4 $40 $1.50 (+.80 for 4th hr)

5 $50 $3.10 (+1.60 for 5th hr)

6 $60 $6.30 (+3.20 for 6th hr)

etc...

2) [20 points] Write a program that will determine the number of hours required before the second method becomes more beneficial than the straight $10/hr (first method). There will be no input to this question

-- just output the answer.