

Programming Selection Homework 1

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Problem #1: Arithmetic

- Read 2 integers, A and B, and print out statements based on the following cases:
 - If both are odd, print out their product, $A*B$
 - If both are even, print out the result of the following division: A/B (assume $B \neq 0$)
 - If the first number is odd, and the second is even, then print the sum of A and B: $A+B$
 - If the first number is even, and the second is odd, then print out: $A-B$
- Example input \Rightarrow output:
 - 5 7 \Rightarrow 35
 - 12 2 \Rightarrow 6
 - 5 6 \Rightarrow 11
 - 12 3 \Rightarrow 9

Problem #2: Sort 3 Numbers

- Given 3 integers, sort (order) them in ascending order, then print them out
- Input \Rightarrow output:
 - 1 2 3 \Rightarrow 1 2 3
 - 1 3 2 \Rightarrow 1 2 3
 - 2 1 3 \Rightarrow 1 2 3
 - 2 3 1 \Rightarrow 1 2 3
 - 3 1 2 \Rightarrow 1 2 3
 - 3 2 1 \Rightarrow 1 2 3
- Notice how there are precisely 6 possible permutations of 3 numbers

Problem #3: Constrained Maximum

- Given 3 integers, you have to find the largest one - **but, it must be < 100**
 - Print -1 if there is no such number
- Input:
 - 22 90 115 \Rightarrow 90
 - Here [20 90] are the only ones < 100. Maximum (20, 90) = 90
 - 200 300 400 \Rightarrow -1
 - All of them are ≥ 100 , so there's no answer from our integers (-1)
 - 50 100 150 \Rightarrow 50
 - Only 50 is < 100
 - 10 30 20 \Rightarrow 30
 - All 3 numbers are < 100, and their maximum is 30

Problem #4: Conditional Count

- Write a program that reads in a number X , and then other 5 numbers. Print out **two** values:
 - 1) How many numbers $\leq X$
 - 2) How many numbers $> X$
 - Can you see any relationship between these two outputs?
- Input:
 - 10 300 1 5 100 200
 - Output: 2 3
 - Explanation
 - 2 numbers (1, 5) are ≤ 10
 - 3 numbers (100, 200, 300) are > 10

“Acquire knowledge and impart it to the people.”

“Seek knowledge from the Cradle to the Grave.”