OMKAR BHARITKAR

112016020 ECE

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DSA Lab : 2 Theory.

1. Write an algorithm for swapping two values.

→ step 1 : Start.

step 2 ; Read a, b.

step 3 ; a = a + b

step 4 ; b = a - b

step 5 : a = a - b

step 6 : Print a, b.

step 7 : Stop.

2. Write an algorithm to find the larger of two numbers.

→ step 1 : Start

step 2 : Read a, b.

step 3 : if a > b Print a is largest.

step 4 : otherwise print b is largest.

step 5 : stop.

3. Write an algorithm to find whether a number is even or odd

→ step 1 : start:

Step 2 : Read number:

step 3 : reminder = number % 2.

step 4 : If reminder == 0
print Even number.

step 5 : Else odd number

step 6 : Stop.

4. Write an algorithm to find sum of first n natural numbe

→ step 1 : start.

step 2 : Declaring and inializing variable i, sum, s=0.

Step 3: Enter the value of number upto which sum is to be calculated.

Step 4: Using loop to add the numbers. for loop.

Step 5: Print the sum.

Step 6: stop.

5. A C++ program is required to calculate the value of distance, in miles, given this relationship:

Distance = average · speed x time.

a) For this programming problem, how many outputs are required?
b) How many inputs does is problem have?
c) Write an algorithm for converting the input items into output items.

a) → Only one output of distance is required.

b) → Two inputs of time and average speed are required.

c) →

Step 1 : Start.

Step 2 : Input time and average speed

Step 3 : Distance is calculated by.
Distance = speed x time.

Step 4 : Print out distance.

Step 5 : Stop.

Algorithm : 1 Monthly wages for a worker.

Step 1 : Start.

Step 2 : Enter the gross ~~domestic~~ payment of the worker.

Step 3 : Calculate and print all type of taxes with respect to gross payment.

State tax : wage x 0.03
Income tax : wage x 0.01
Social security : wage x 0.02
Medicare : wage x 0.0278.
Pension plan : wage x 0.06.

Step 4 : Net total payment is calculated as :

total payment = grosspayment - all taxes.

Step 5 : Total payment is printed.

Algorithm 3: fahrenheit to celcius.

Step 1 : Start.

Step 2 : Enter temp. value in Fahrenheit

Step 3 : Calculate the temperature in celcius using :

$$C = 5/9 * (F - 32).$$

Step 4 : Print temperature in celcius

Step 5 : Stop.