

Labs

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Multiples	Discount Shopping	Fibonacci
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Multiples

Build a program asks the user for a number and how many multiples of the number they want to see. The program will then display the entered number and the first x of its multiples.

Rubric (counts as 1 other grade)

Points	Task
10	Gets data
20	Displays entered number
50	Correct multiples
20	Formatting and neatness

Factors

Write a program that allows the user to enter a positive integer value. When the user enters an invalid value the program will continue asking for a value until a valid value is given.

After a good value is entered, the program will tell the user all the factors of the entered number.

Rubric (counts as 1 other grade)

Points	Task
25	Gets data
25	Only accepts good data
25	Correct Factors
25	Formatting and neatness

Math Menu

Write a program with a menu that allows the user to perform the following operations: square, power, square root and exit. After each non-exit action is performed the user should be allow to select another action. Each option will take a double as its input.

Rubric (counts as 1 other grade)

Points	Task
20	Working repeating menu
20	Correct power
20	Correct square root
20	Correct square
20	Formatting and neatness

Sign Counter

Write a program that will read in integer values from the user until 0 is entered. After the user enters 0 the program will print the number of negative values entered and the number of positive values entered.

Rubric (counts as 1 other grade)

Points	Task
20	Gets data
30	Correct positive count
30	Correct negative count
20	Formatting and neatness

Discount Shopping

Write a program that will allow the user to enter prices and discounts on items they are buying at a sale. The program will continue to gather values until 0 or a negative value is entered for the cost.

Once a 0 is entered the program will display the subtotal of the items before the discounts were applied, the subtotal of the items after the discounts were applied, how much they saved, the amount of tax on the purchase and the total cost once tax has been applied.

Rubric (counts as 1 minor grade)

Points	Task
10	Gathers costs/discounts until a price of 0 is entered
20	Correct pre-discount subtotal
20	Correct post-discount subtotal
10	Correct savings
10	Correct tax
10	Correct total
20	Formatting and neatness

Number Lines

Write a program that will get a positive integer value from the user and then display that many lines of numbers. The program will continue to get numbers from the user until a valid number is entered. After a valid number is entered the program will generate a triangle of numbered lines.

The first line will have the number 1, the second line will have the numbers 1 and 2, the third line will have the numbers 1, 2 and 3. All the lines will follow this pattern. The final line will start at one and end at the entered number.

Rubric (counts as 1 minor grade)

Points	Task
20	Gets data
30	Correct number of lines
30	Correct data on each line
20	Formatting and neatness

Printing Numbers

Write a program that uses for loops to print numbers to the screen. The program will have three options: print numbers in ascending order (1 to the number entered), descending order (number entered to 1), and print random numbers (will print x random numbers). After an option has been selected the user will then enter the number of numbers they want to see.

Rubric (counts as 1 minor grade)

Points	Task
20	Menu
20	Ascending option
20	Descending option
20	Random option
20	Formatting and neatness

Guessing Game

Write a program that randomly creates an integer value from [1 to 1000]. The user will be allowed to guess values until they guess the computers value correctly.

When the user's guess is too low the program will display "too low", when the user's guess is too high the program will display "too high" and when the guess is correct the program will display how many times the user guessed until they got the value correct.

Rubric (counts as 1 minor grade)

Points	Task
20	Correctly generates a random number from 1 to 1000
10	Correctly identifies "too high" / "too low"
20	Ends on a correct guess
30	Correct guess count
20	Formatting and neatness

Common Factors

Write a program that gathers two numbers from the user. The program will display both the numbers and list off all the common factors they share.

Rubric (counts as 1 minor grade)

Points	Task
10	Gets data
20	Displays both numbers
50	Displays all the factors that are shared
20	Formatting and neatness

Fibonacci

Write a program that will get a positive integer value from the user. The program will continue to ask the user for a value until a good one is entered. Once a good value is entered the program will display the entered number and if it is Fibonacci or not.

Rubric (counts as 2 minor grades)

Points	Task
20	Gets a positive data
30	Correct when the number is Fibonacci
30	Correct when the number is not Fibonacci
20	Formatting and neatness

Prime or Not

Write a program that gets a positive number from the user. The program will keep getting numbers from the user until a valid number is entered. The program will reprint the number and tell the user if it is prime or not.

Rubric (counts as 2 minor grades)

Points	Task
10	Gets data
10	Prints entered number
30	Correct for prime numbers
30	Correct for non-prime numbers.
20	Formatting and neatness