

## EEE2021: Computer Programming & Organisation

### Lab 2: Conditional Statements

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#### Exercise 1:

Write a program that requires the user to enter two integers, obtains the two numbers, prints the largest one followed by the words **"is the largest."** If the numbers are equal, print the message **"These numbers are equal."** Use if statements.

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#### Exercise 2:

Given an input temperature and its scale (Celsius or Fahrenheit), convert the corresponding temperature to the other scale by using **if...else** statements.

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#### Exercise 3:

Given an input temperature and its scale (Celsius or Fahrenheit), convert the corresponding temperature to the other scale by using **switch...case** statements.

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#### Extra 1:

Given three values **a, b, c**, which represent the coefficients of a second-degree equation:  **$a x^2 + b x + c = 0$**  calculate the two solutions (if real) using quadratic formula and conditional statements.

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#### Extra 2:

Write a program to input a char and check whether given character is alphabet, digit or special character using **if...else** statements and **ASCII** values.

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### Lab 2: Loops

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#### Exercise 1:

Write a program that calculates the sum of the integers from **1 to n** (n is entered by keyboard). First check with a **do...while** loop if the number n entered by the user is positive. Then use the **while loop** for the calculation.

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#### Exercise 2:

Write a program that utilizes a **for** to print the numbers from 1 to 10 side-by-side on the same line with three spaces between numbers. Use **for loop**.

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### Extra 1:

Write a program that utilizes loops to print the following table of values:

N	10*N	100*N	1000*N
1	10	100	1000
2	20	200	2000
3	30	300	3000
4	40	400	4000
5	50	500	5000
6	60	600	6000
7	70	700	7000
8	80	800	8000
9	90	900	9000
10	100	1000	10000

The tab escape sequence `\t` can be used in the loop to separate the columns with tabs.

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### Extra 2:

Write a program to input a number and check whether the number is prime number or not using for loop.

Example:

Input

Input any number: 17

Output

17 is prime number

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### Lab 2: Functions

#### Exercise 1:

Write a program to find the square of any number. This should be achieved by defining a dedicated function, e.g., `double square(double num)`, to calculate the square, which is called in the main function. The initial number is given by the user.

Example:

Input a number: 20

The square of 20 is: 400.00

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### Extra 1:

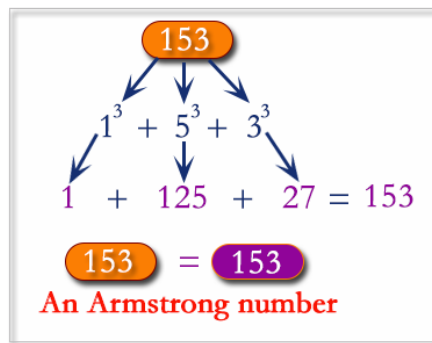
Write a program that verifies if a three-digit number given by the user, e.g., 371, is an armstrong number and/or a perfect number. This should be achieved by defining two dedicated functions, e.g., `int checkArmstrong(int n)` and `int checkPerfect(int n)`, which are called in the main function.

Example:

Input any number: 371

The 371 is an armstrong number.

The 371 is not a perfect number.



*Perfect Number :*

Divisor of 28 : 1, 2, 4, 7, 14, 28

Sum of 1 + 2 + 4 + 7 + 14 = 28

Sum = Original Number

28 is Perfect number