

Topics:

Branching, Looping, nested loops

A2.1

Read Integer N and k and Print the First k Powers (N , N^2 , ... N^k)

Hint: Do this using a loop

A2.2

Take a number input from the user and do the following

- a. Check if the number is even or odd
- b. Check if the number is divisible by 7 or not
- c. Print the sum of its digits

A2.3

Print Ascii values (1-127) and the corresponding characters using using **while** loop

A2.4

Take input from the user, a date in the current decade.

- a. Take the input as three integers: day, month and year
- b. Check if the entered date is valid or not

Example: day=10, month=11, year=2020 is valid but day =29, month=2, year=2023 is not valid, consider any input year outside of the current decade as invalid.

Hint: you need to use nested if else statement

A2.5

Find a Grade of Given Marks using a switch case statement. Use default for invalid inputs.

A2.6

Create a infinite loop in which you take a character input from the user, you check the input from the user in the loop, if the input is 'n' or 'N' then you stop the loop, otherwise you let the loop continue

— Do this using both for loop and while loop

Hint: you need to use the **break** keyword

A2.7

- a. Print multiplication table for **all even** numbers between 1-30 using **for** loops

Hint: nested loops is needed

- b. Print multiplication table for **all odd** numbers between 1-30 except for the numbers 1, 5, and 27 using **do-while** loop

Hint: you need to use the **continue** keyword properly

A2.8

Print the following patterns using nested loops

A

B B

C C C

D D D D

E E E E E

Extend the program with an user input to control the size of the printing, i.e., if the user inputs H, then your program should print from A till H, a total of 8 lines.

A2.9

Take a number input from the user

- Count Number of Digits of an Integer Using While Loop
- Print the sum of the digits
- Print the reverse of the number (i.e. if 123 is entered, you print 321)
- Check if the number is palindrome or not (i.e. 123321, 42324 are palindromes, but 1241 is not)
- e.

A2.10

Print Pascal's triangle. Check [this link](#) for more information on Pascal's triangle.

Example:

```
    1
   1 1
  1 2 1
 1 3 3 1
1 4 6 4 1
1 5 10 10 5 1
```

Extend your program so that it works for any number (taken as input from the user) of rows.