IGS1131 Branching

SHAFENOOR

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Conditions and If statements

```
a = 90
b = 100
if b > a: print("a is greater than b")

a=100
if b > a:
  print("b is greater than a")
else:
  print("a is greater than b")

a = 200
b = 33
if b > a:
  print("b is greater than a")
elif a == b:
  print("a and b are equal")
else:
  print("a is greater than b")
```

```
a is greater than b
a is greater than b
a and b are equal
```

Problem #1

- Based on the number print the grade from the following criteria:

Number	Grade
>90	A
>80 and <=90	B
>=60 and <=80	C
Below 60	D

Problem#2

- Calculate cumulative tax for the income for the following criteria:

Income	Tax
Above 150,000	15%
From 50,000 to 150,000	10%
First 50,000	5%

Problem #3

- A program to check if a year is Leap year or not
  - Every 4^{th} year is a leap year
  - However, every 100^{th} year although being a 4^{th} year is not a leap year
  - Moreover, every 400^{th} year regardless is a leap year

Problem#4

- A program to check if a number entered is a three-digit number or not

Input	Output
123	Yes
150	Yes
5	No

Problem#5

- A program to find the lowest number between 5 numbers

Input	Output
12 3 5 18 20	3
100 15 -5 4 3	-5
16 8 4 11 1	1

Problem#6

- A program to find even or odd on a given number

Input	Output
10	Even
7	Odd
16	Even

Problem#7

- A program to check if a given character is vowel or not

Input	Output
a	Yes
b	No
o	Yes

Problem#8

- A program to check whether the triangle is valid or not if angles are given

Input	Output
30 20 30	Invalid
30 60 90	Valid
30 90 70	Invalid

Problem#9

- A program to check whether the triangle is valid or not if sides are given

Input	Output
30 100 30	Invalid
10 10 10	Valid
30 60 90	Invalid

Problem #10

- Write a program that will take a number as an input and print the result by executing following criteria:
  - If the number is greater than hundred, then
    - Check if it is divisible by 3, 2 and 1
    - If the number is divisible by 3 then add 3 to the result
    - If the number is divisible by 2 then add 2 to the result
    - If the number is divisible by both then add 18 on top of the additions
    - If it is divisible by none then subtract 11 from the result
    - If it is divisible by one of 2 or 3 but not the other one, then multiply the result with the number it is not divisible by.
  - If it is less than hundred, then all the process should be then with their counterpart operator. Meaning, if it is mentioned to be an addition the use subtraction and if it is said to be multiplication then use division

Questions?