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Decision Statements

- Statement vs Expression
- Relational Operators
- Logical Operators
- If statement and its variants
- **Nesting** of statements

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Statement vs Expression

- **Expression** is something that evaluates to a value
- **Statement** is any line of code that can be executed by the python interpreter.
- Since expressions evaluate to value, so they can appear on the rhs of an assignment operator (=).

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Relational Operators

• These operators return **True** or **False** depending on truth or false value of the relation

Operators:

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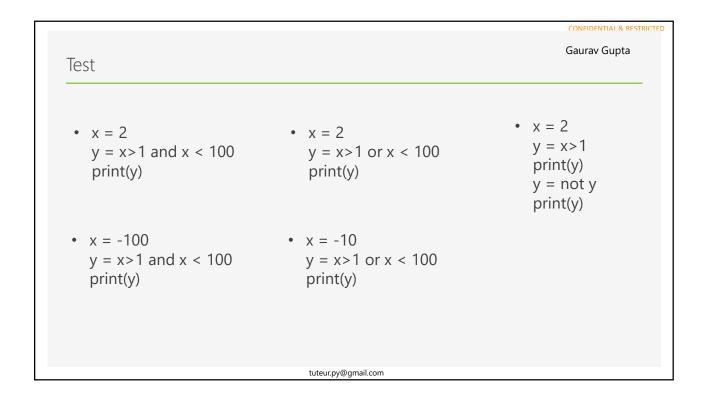
Logical Operators

- These operators evaluate **Truth** and **False** values and return **True** or **False**depending logic of the operator
 - 3 logical Operators:

and, or, not

• and and or are binary operator, whereas not is a unary operator

X	Y	X and Y	X	Y	X or Y	Х	not X
False	False	False	False	False	False	False	True
False	True	False	False	True	True	True	False
True	False	False	True	False	True		. 0.00
True	True	True	True	True	True		



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Simple If Statement

- if condition_1: statement_block_1 # notice the indentation (spacing) before the block
- The code referred to as statement_block_1 gets executed only if the condition evaluates to true else gets skipped.
- WAP to print absolute value of a number

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Simple If-else Statement

- if condition_1: statement_block_1 else: statement_block_2
- The code referred to as statement_block_1 gets executed only if the condition evaluates to true else statement_block_2 gets executed.
- WAP to input 2 number and print the larger one
- WAP to print whether number is even or odd
- WAP to check if a string is palindrome or not (naman is palindrome, gaurav is not)

if-elif-else Statement

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```
    if condition_1:
        statement_block_1
        elif condition_2:
        statement_block_2
        ...
```

else:

optional

statement_block_n

- WAP to check if no is positive, negative or zero.
- WAP to create a 4 function calculator. (also update to use functions)

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if-elif-else Statement

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 WAP to input age and print the respective text depending on the age ranges as present in the table.

Age	Text To display				
0-12	Child				
13-17	Teen				
18-50	Adult				
51-100	Senior Citizen				
age > 100	All the Best				

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Nested if-else statements

- if condition_1:
 if condition_2:
 block_1
 else:
 block_2
 elif ...
 ...
- When a if block appears within another if block (can be inside elif or else or both), the inner block is said to be nested inside the outer block.

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Test

- WAP to input 2 numbers. And do operation depending on the following:
 - 1. if any of the numbers is negative:
 - a. if both are odd, add them
 - b. otherwise, subtract them
 - 2. otherwise:
 - a. if both are odd, multiply
 - b. if one of them is odd, divide
 - c. otherwise, find remainder
- WAP to input 2 numbers and check whether the first is divisible by the second and print true or false depending on the divisibility.
- WAP to print the value of the largest of 3 numbers taken as input from the user.

```
Mapping Type: Dict

Dictionary

Operations

Programs
```

```
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Mapping: dict
• Mutable mapping type. Represented using {}
# Creation
                            # empty dictionary
       d = \{\}
       d = dict()
                            # empty dictionary
       d = dict(one=1, two=2, three=3)
       d = {'one': 1, 'two': 2, 'three': 3}
       d = dict([('two', 2), ('one', 1), ('three', 3)]) # list of tuples
# Operations
       d[<Key>] to access a value. Exception if key not found.
       d[<Key>] = <Value> creates or overwrites Value for a Key
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```

```
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Dict: Operations
       del d[key]
                            # delete the entry for Key
       pop(key [, default] ) # deletes and returns value, exception if key not
                             found and Default not provided
       key in <d>
                            # checks for membership of key in dictionary d
       key not in <d>
# Accessing elements
       get(key, [default_value]) # returns key corresponding to the
value. If key does not exist, returns None. If default value is specified, returns
default value instead of None
       items() # returns list of tuples of form (key, value)
       keys() # returns list of keys values() # returns list of value
                    # returns list of values
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```

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Question

Dictionary

- _ Create a mapping of number to word from 0-9. **(0:'zero'.....)**
- _ Ask user for a single digit number and print the corresponding word format
- _ Print all keys of a dictionary
- _ Print all Values of a dictionary
- _ Print all Key and Values of a dictionary

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Questions

 WAP to input a string from user and count occurrence of each alphabet in the string (Hint: use dictionaries). Upper and lower case alphabets are the same ex: sunny DaY

s:1 u:1 n:2 y:2 d:1 a:1