

## Assignments on variables expressions and statements

1. Take the input from the user for (Total number of people, Number of seats for bus. Based on two inputs

Decide how many number of buses required

2. take temperature from the user and convert foreign heat -> Celsius.

3. take temperature from the user and convert Celsius → foreign heat.

4. take four number from the user (variables name it as x1,x2,x3,x4)

Do the below operations

$(x1+x2)**2$ ,  $(x3+x4)**3$

variance

standard deviation:  $\text{sqrt}(\text{variance})$ : User math module.  $\text{Math.sqrt}(\text{variance})$

Regression

$$y=mx+b$$

$$m=1.23$$

$$b=0.045$$

find out y

$$y=m*(x1+x2+x3+x4)+b$$

Find the average of four numbers

Find the sum of four numbers

5. Take the distance in km

Show that in cm, meters, in milli meters, cents, feets, yards

6. Take the size of your hard disk in GB

Show that in MB, KB, TB, PB

7. Take name, age, height from the user and print like below

The details of the person: Name:name of the person, Age:age of the person, Height:height of the person

Note: make sure that no space between : and a value and should be space after "COMA"

8. BMI calculation: take required parameters for BMI calculation from the user and calculate BMI of the person.

9. name="Jayaram"

age=1.6

height=3.5356234

weight=10.343856783

By using above inputs print the output

Name:Jayaram, Age:1.6, Height:3.54, Weight:10.344

Note: Use format specifiers(%s, %d, %f)

10. Take three upper case letters from the user convert in to small case.

11. take base and exponent value from the user and print like in mathematics:

example: base=2, exponent=3:  $2^3$

Use: 2\u00b3

12. Take some groceries cost prices and print total cost and average cost, what is the max cost, what is the minimum cost.

## Variable Assignments:

13. Assign "ten" value to variable it is 10 otherwise assign "Not ten"

Note: write two versions of program

Version1: use and operator

Version2: use or operator

## Conditional statements

13. Take the input from the user for(Total number of people, total number of buses, Number of seats for bus, adjust factor). Based on four inputs

Decide whether there is sufficient buses or not and give solution for how many extra buses required.

14.Take number from the user decide whether it is even or odd.

15. take number from the user decide whether it is positive number or negative number

16. take a string from the user print the length. if the user not given anything then show an error message

17. code to perform mathematical operations. take two numbers from the user and show the below menu

1. add,

2. sub,

3. mul,

4. div,

5. quit

Enter an option:

based on the option need to perform an operations

18. show the menu:

1. kids

2. Men's

3. Women's

Show the corresponding message based on the selection.

Option:1: you are a kid

2: you are a gentlemen

3: you are a good women

Mention error message if the option value >3.

19. write a program to check given substring is there in actual string or not?

example: act="python is a pure object oriented programming language"

check whether "pure" is there in act or not.

Note: Use in operator

20. Take three numbers from the user and decide which is big

21. Take age and gender from the user and decide whether he is eligible for marriage in India or not.

Age criteria: men age>24, women>21

22. Take an age and gender from the user: and mention that what he/she can do in india.

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conditions

1. Theatre: 5 for men 7 for women

2. Voting system: 18 for men and women

3. Marriage in india: 23 for men and for women >21

4. For govt jobs: (min:18, max:32) for men and (min:18, max:34) for women

5. For driving licence: (min:18, max:60) for men and women

Eligibility:

1. theatre

2. Voting system

3. Marriage in india

4. For govt obs

5. For driving licence:

Enter an option:

Gender:

1. men

2. women

Enter an option:

Enter an age of person:

23. operating systems:

1.windows

2.android

3.mac

Enter an option:

If the user enters 1 then show "Goto first floor and buy windows laptop or mobile"

If the user enters 2 then show "Goto second floor and buy android mobiles"

If the user enters 3 then show "Goto third floor and buy mac laptop or iphones"

If the user enters other than 1 or 2 or 3 then show "There is only three floors, please select 1 or 2 or 3"

24. Given an age, figure out whether someone's a baby, toddler, child, teenager, adult or old codger.

25. Take two numbers a, b from the user and check whether a is divisible by b or not

26. Take a letter from the user and print that letter belongs to which category i.e. is it a small letter or capital letter or number or special symbol

## looping statements

25. take a number from the user and check whether it is prime?

26. take a string from the user and check contains only digits or not?

27. take a string from the user and check contains only alphabets or not?

28. take a string from the user and check contains only special chars or not?

29. take a string from the user and check contains only capital letters or not?

30. take a string from the user and check contains only small letters or not?

31. WAP to replace last n occurrence of given string.

For example: "apple,orange,apple,grape,orange,apple,apple,orange"

source: "apple"

last occurrences: 2

replace with: APPLE

output: "apple,orange,apple,grape,orange,APPLE,APPLE,orange"

32. WAP to check given string contains numbers or not. it should consider float numbers also.

33. Convert the total string in to lower case. Without using lower() function.

34. Convert the total string in to upper case. Without using upper() function.

35. Show the below menu to the user until and until user select quit and display corresponding os message

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Menu:

1. windows

2. Linux

3. Mac

4. quit

'''

36. take a string from the user and check contains at least one digit or not?

37. take a string from the user and check contains at least one alphabets or not?

38. take a string from the user and check contains at least one chars or not?

39. take a string from the user and check contains at least one capital letter or not?

40. take a string from the user and check contains at least one small letter or not?

41. Print the first 100 odd numbers

42. Determine the factors of a number entered by the user

43. Play a number guessing game (User enters a guess, you print YES or Higher or Lower). This should continue until and until user gives a correct number or want to quit in the middle.

Get a hidden number by using random.randint(1,100)

44. Take two numbers from the user a,b check whether a is divisible by b or not?
45. Find the sum of all the multiples of 3 or 5 below 1000
46. Write a program to find out big of two numbers
47. Write a program to find out biggest number in the given numbers.
48. find out the index of third occurrence of given substring
49. find out the index nth occurrence of given substring
50. Take some single digit numbers from the user and findout min, maximum, sum, average
51. print the number in proper mathematical way.

Consider that we have 6 digit numbers.

Number format WAP> 10 -> 000010

100 -> 000100

1000 -> 001000

2345678 -> 2345678

If the number has more than 6 digits then print as it is.

52. names ="emp1,emp2,emp3,emp4" iterate through the employee names.
53. Take actual string, source string, destination string. replce first nth occurrences of source string with destination string of actual string.
54. Take a two numbers from the user and do below menu driven operations

1. addition

2. multiples

3.division

4.sqrt

5. pow  $a^{**}b$

6.subtraction

After selection do the corresponding operation.

Note: user may give int, or float numbers. You should check whether it is proper digits or not. I.e the user given string should be in the position to convert to float. Other wise show the "improper string given" Error.

55. Take numbers from the user and find out min, maximum, sum, average

56. l=[1,2,3,5,7,8,9,10,11,12,13,20,22,23,24,25,26,27,20,21,22,4] find out how many even numbers are there and how many odd numbers are there and how many positive numbers are there and how many negative numbers are there and how many prime numbers are there and how many perfect numbers are there and how many Armstrong numbers are there and how many palindrome numbers are there.

57. Take a string from the user and find out how many digits are there, how many special symbols are there, how many small letters are there, how many caps are there.

58. Take a char from the user and find out how many number of occurrences are there in given string

59. Take a element from the user and find out how many times the element occurred in given list

60. Take an element from the user and find out how many number of occurrences are there in given tuple

61. Reverse the string without effecting the special symbols. It involves three variations. Write code for three variations.

62.Input: abc123,#\$45def6%^789\$%^, output: \$%^987%^6fed54,#\$321cba

63.Input: abc123,#\$45def6%^789\$%^, output: 9876fe,#\$d54321%^cba\$%^

64.Inout: "123,#\$456%^789\$%^", Output: 321,#\$654%^987\$%^

Only numbers has to reverse.

## FUNCTIONS:

65. define a function to take person details name and age are mandatory parameters and height weight are optional parameters. If the user willing to pass any other details(like adhar, cell, pan, passport etc..) regarding him then your function should access those details.



65a. rewrite above assignments by functions. Can use string functions to solve the string related assignments

65 b. write a function to check given value is even or not

65 c. write a function to check given value is prime or not

65 d. write a function to check given 2 values are divisible or not

## STRINGS

67. take a string from the user and check contains only digits or not?

68. take a string from the user and check contains only alphabets or not?

69. take a string from the user and check contains only special chars or not?

70. take a string from the user and check contains only capital letters or not?

71. take a string from the user and check contains only small letters or not?

72. WAP to replace last n occurrence.

73. WAP to check given string contains numbers or not. it should consider float numbers also.

74. Convert the total string in to lower case.

Convert the total string in to upper case.

75. Convert every word start letter into caps. Some how title not working if it contains numbers and special symbols in the word

76.replace last two occurrences of given source string with destination string

preserve the delimiter after split.

77. write a program to check given substring is there in actual string or not? (search should be case insensitive)

example: act="python is a pure object oriented programming language"

78.check whether "pure" is there in act or not.

Note: Use in operator

## DATA STRUCTURES

79.  $l=[10,20,30,[40,50,60],70,[80,90,20]]$ . Convert this list as single dimensional list
80. input: "Google" print count of each character
81. Convert n dimensional list to single dimensional list.
82.  $l=[1,2,3]$  just make it as a string.
83.  $l=[1,2,3,[4,5,6],7,[8,9,10]]$  for single dimensional list
84.  $l=['a','A','b','B','d','D','c','C']$  WAP to find out case insensitive count and 85. case insensitive search for an element.
86.  $l=['a','A','b','B','d','D','c','C']$  sort the list properly
87. find the start position of the largest block of repeated characters in a given string
88. WAP to find union and intersection of lists.
89. input: fun(5) output: [1,2,3,4,3,2,1]
90. input fun('abc') output: [[],[a],[b],[c],[a,b],[b,c],[c,a],[a,b,c]]
91. Remove duplicates from the list:  $a=[1,2,3,2,3,4,1,,3,4]$
92.  $l=['1','2','3']$  get the sum of the list
93.  $l1=[1,2,3,4]$   $l2=[5,6,7,8]$  sum of two lists
94. Find third max value of element in a list with sorting and without sorting a list.
95. Input = ["1/1","1/2","1/3","1/4","2/5","2/6","2/8"] Output = [['1/1-4'], ['2/5-6'], ['2/8']]
96.  $l=[1,2,3,5,7,8,9,10,11,12,13,20,22,23,24,25,26,27,20,21,22,4]$  output = [[1, 2, 3], [5], [7, 8, 9, 10, 11, 12, 13], [20], [22, 23, 24, 25, 26, 27], [20, 21, 22], [4]]
97. input = 1,2,3,4,5,6,8,10 output = odd,even,odd,even,odd,even,even,even
98. input n=3
- output: 111
- 101
- 111
99. input: Google

output: {'g':2,'o':2,'l':1,'e':1} use dictionary comprehension

100. keys=['k1','k2'], values = ['v1','v2'] form a dictionary.

101. Sort the list marks = [("mohan", 80), ("satish", 90), ("purnesh", 40), ("venkat", 30)] according to descending order of marks

102.write a function to get dynamic list for floating numbers also based on start and end and step parameters

103. find out all perfect numbers in given range

104. WAP to do all stack operations using lists

105.WAP to do all queue operations using lists

106. WAP to remove n occurrences of specified element from a list

107. compare two lists ignore order. i.e return True l1=[1,2,3,4],l2=[4,2,3,1], fun(l1,l2)-> True

108. XOR operation in python.

109. how to remove all occurrences of the given element in a list

110. how to remove first n occurrences of the given element in a list

111. how to remove last n occurrences of the given element in a list

112. how to remove nth occurrences of the given element in a list

113. WAP to generate list of floats i.e: fun(0,1,0.1), [0,0.1,0.2,0.3,0.4,0.5,0.6,0.7,0.8,0.9]

114. WAP to remove all occurrences of given substring from actual string

115. WAP to remove first n occurrences of given substring from actual string

116. WAP to remove last n occurrences of given substring from actual string

117. WAP to replace last n occurrences of given substring with destination string in actual string

118. WAP to sort the string.

119. take a comma separated numbers and find out max number.

120. Read a json file. Try to get the information from the file

121. Read a yaml file. Try to get the information from the file

122. Read any image data using OpenCV

123. make alternative words reversed in given string:

ex: "python program good language" -> "python margorp good egaugnal"

124. `l=['c','cpp','java','php','python']`

case insensitive count# `l.count("C")` -> 1

like count `l.lower().count("c")` -> 2 with case insensitive

125: take total parameters, out of which few are optional and few are mandatory. Take some parameters from the user and check whether the user given all the mandatory parameters or not.

For example: to insert person details

Total parameters: name, age, height, pan, cell, adhar, passport

mandatory: name, cell, adhar

if the user given: name, adhar, passport then you need to print cell is mandatory parameter

if the user given: name, cell, adhar, passport then you need to print ok

if the user given: adhar, passport then you need to print cell, name are mandatory parameter

## STRINGS

Take two inputs from the user: your program should check for below scenarios.

10,20: 30

12.34,45.67: 58.01

+12,-12: 0

qwe,23we: Enter digits or float values only

116. take the number of employees count from the user and ask the inputs required for the bmi for each and every person. The result should be like below

empid:{"weight":,"height":,"age":,"bmi":0.9,"result": "+ve"}

## Modules:

117. CRM: app.py(define a menu: 1.meetings, 2. customer, 3. quit

1:

- a. create meeting
- b. update meeting
- c. delete meeting
- d. get the meeting

2:

- a. create customer
- b. update customer
- c. delete customer
- d. get the customer

), meetings.py, customer.py

## FILES

118. copy 1 file content in to another file(Take the source and destination file path from the user)

120. print number of lines, words, characters from the given file

121. convert .txt file in .json

122. Take three columns disease, symptoms, advice in a file and fill the details

Ask the user to enter symptoms. Based on this symptoms Suggest the user to what disease it may be and few advices.

123. Take employees info (id,name, age, adress, sal, height, weight)

- a. Take id, provide employee information for that id.
- b. find out average salary.
- c. find out which age, address taking the heighest salary
- d. find out every employee BMI value
- e. Finally find out the Organization overall BMI

124. read the file which contains the size greater than your ram size

125. Read ten gb movie

126. Collect emp information in a file Provide these operations.

Menu:

1. Get information information of an employee

2. Modify employee information

3. delete an employee information (Only status field change in the employee file)

4. Add an employee.

127. Take Source and destination file paths from command line arguments and copy the sourcontent into destination.

Make Sure that your program checking the below conditions.

1.if the source file not there. Should ask the user to enter new source file or want to quit a program

2.if the destination file already there in the specified path. Should warn the user want to proceed or want to enter new destination file name or want to quit

128. Bulk file copy.

Take source and destination file paths from a file and copy the source file content into destination file.

Maintain configuration file and put the below fields there

Source not found: Skip the copy

destination found: skip/replace

maintain a remarks log. What are the files skiped from copy because no source file found. What are the files skip/replaced because of destination file foun in the specified path

SAMPLE PROJECT:

Company recruitment drive

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Console based APP

1:login

2:register

Enter an option:

1--> username:

password:

if the username and password is there in your db then show operation menu:

1:know your details

2:drive date

if he is a hr manager:

1: aspirants group details by city

2: Toatal aspirant count

3: drive date

4: update the drive date

2--->

username:

password:

email:

phone:

higher education:

city

""""

## OOPS

1. Write a class(DB) program to create a table, insert values, update values, delete values of the table.

All database operations code write in a file(db\_operations.py) and call these operations in another file( app.py).

In app.py create instance of the DB class and call all the methods by passing some data.

2. write a program to do registration.

Write a methods in a class DB to open database connection and insert details in to database table.

3. Write a Model parent class and implement a create method.

Write child class person for Model and override method create method and call the parent(Model) class create method in the child(person). create an instance of person class and call the create method.

4. create a user defined datatype, and provide functionalities of addition subtraction and multiplication. Create three instances(obj1,obj2,obj3) and print an output of obj1+obj2+obj3, obj1-obj2-obj3, obj1\*obj2\*obj3

5. addition, subtraction, multiplication operations are not supported by dictionary. Write a program to provide addition, subtraction, and multiplication operations to dictionary. Write your own definition for operations.

6. write a class that can create only one object. IF create one more object then it should written existing object but not new. Create three instances and print id's of the instances. All the id's should show same address.

7. implement class method and instance method and static method in a class with an example. Create a instance and call all the methods. Write down what is class method and instance method and static method.

8. write a class program to demonstrate method overloading in python using below scenario.

9. Write a class and constructor to create an instances like below

a. p1 = person(id=1,name="ashok",age=23,sal=56787)

b. p2 = person(id=2,age=24,adhar=23456)



c. p3 = person(id=4,pan="brcp3456",sal=23,age=45)

make instance iterable and provide the operation  $sp1+p2$ ,  $p1-p2$ . Give your own definition for the operations

## RANDOM ASSIGNMENTS

Remove duplicates elements of the list without using built in keywords and temporary list.

109.78. WAP to replace particular number of substrings with a given destination string

.WAP to remove substring from the given string without using replace function

.WAP to remove particular element from a given list for all occurrences

. take two lists keys, values and form a dictionary

. delete more than one key value pair at a time.

.s="python program" output: python marporp.

.Use any api service using requests module and parse the data

.Write a services to provide the data there in the database to the clients

.Write a services to create, delete and modify the data which is there in the database.

Write a `own_split(data=data,delimiter='\n',keepdelimiter=False)` method to keep the delimiter while splitting the data, if the developer pass `keepdelimiter=True`

persons=[{'id':1,'name':"name1"},{'id':2,'name':'name2'}]. write the persons info in to file and read and iterate through the data

Get the information from the system for every minute and show the freespace and used space in the RAM. and performance of the CPU.

"[{'id': 1, 'name': 'name1'}, {'id': 2, 'name': 'name2'}]" the data is in the form of string. Convert this in to list of dictionaries

Find the ram and cpu performance for every hour and draw a consolidated bar graph for every day.

Take the data set of students with total marks and add the rank,result, grade columns.

Create customer table in any DBMS (sqlite3/mysql/postgres/oracle). write service and request program: request: sends the client id, service: based on client id the service need to send the client information.

Given number is perfect number

print first 100 prime numbers

What is the biggest prime number in the given range

check whether given number is armstrong number or not

Find biggest armstrong number in a given range

print first ten armstrong numbers

WAP to reverse each word in the given sentence.

WAP to find the duplicated words in the given sentence.

How to check if two Strings are anagrams of each other?

anagram: Two strings are anagrams if they are written using the same exact letters, ignoring space, punctuation and capitalization. Each letter should have the same count in both strings. For example, Army and Mary are anagram of each other.

134. How to program to print first non repeated character from String?

for Example if given String is "Morning" then it should print "M". This question demonstrates efficient use of Hashtable. We scan the string from left to right counting the number occurrences of each character in a Hashtable. Then we perform a second pass and check the counts of every character. Whenever we hit a count of 1 we return that character, that's the first unique letter. Be prepared for follow-up question for improving memory efficiency, solving it without hash table as well.

How to find all permutations of String?

for example, the if input is "xyz" then it should print "xyz", "yzx", "zxy", "xzy", "yxz", "zyx".

How to check if String is Palindrome?

For example, if the input is "radar", the output should be true, if input is "madam" output will be true, and if input is "python" output should be false.

How to remove duplicate characters from String?

For example, if the input is 'bananas' the output will be 'bans'. Pay attention to what output could be, because if you look closely original order of characters are retained in output.

How to return highest occurred character in a String?

For example if input is "aaaaaaaaaaaaabbbbcddddeeeeee" it should return "a".

How to sort String?

Reverse this string 1+2\*3-20. Note: 20 must be retained as is.

Expected output: 20-3\*2+1

Perform left and right shift on strings.

Reverse the words in string eg. 'The Sky is Blue'.

then print 'Blue is Sky The'.

## Socket

WAP client/server program

client: send a request to service

service: accept the request, and send an acknowledgement to client

client: recv that acknowledgement, print the ack. ask the customer id to enter by user, send customer id to service

service: receive custid, look for data in database, get the data from data base. send it to client

client: client recv the customer data. print that data in his console

NOTE:

need to use logging and exception, modular approach, functions

### MODULES:

write four files: main.py(All processing, and menus),

sales.py(create\_customer, create\_sales\_order),

pur.py(create\_supplier, create\_pur\_order),

product.py(create\_product, update\_product, delete\_product)

Show menu to user:

- 1.sales
- 2.pur
- 3.product

Enter an option:

If the user enters 1 then show the below menu:

sales menu:

- a.create customer
- b.create sales order

Enter an option:

if the user enters a → call create\_customer function in main.py

if the user enters b → call create\_sales order function in main.py

If the user enters 2 then show the below menu:

purchase menu:

- a. create supplier
- b. create purchase order

Enter an option:

if the user enters a → call create\_supplier function in main.py

if the user enters b → call create\_pur\_order order function in

main.py

If the user enters 3 then show the below menu:

product menu:

- a. create product
- b. update product
- c. delete product

Enter an option:

if the user enters a → call create\_product function in main.py

if the user enters b → call update\_product function in

main.py

if the user enters c → call delete\_product function in

main.py

### **Unit Test**

**Write a automation test script for <https://regres.in/>**

For API document refer <https://regres.in>

Write at least 20 test cases which covers get, post,put,delete methods positive and negative scenarios

If any API expecting a token or authorization use that.