Centurion University

School of Engineering & Technology

Parlakhemundhi Campus

Record of Applied and Action Learning

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SCHOOL OF ENGINNERING & TECHNOLOGY , PARLAKHEMUNDHI

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Q0. A travel company wants to fly a plane to the Bahamas. Flying the plane costs 5000 dollars. So far, 29 people have signed up for the trip .if the company charges 200 dollars per ticket, what is the profit made by the company? Create variables for each numeric quantity and use appropriate arithmetic operations.

Ans.

INPUT:

```
total_amount_need_to_fly=$5000

total_passengers=29

 amount_paid_by_passengers=29*200

print (“total amount paid by the passenger is $”+str(amount_paid_by_passengers))

profit= (total_amount_need_to_fly -total_amount_need_to_fly)

print (“profit got by company is $”+str(profit))
```

OUTPUT:

```
total amount paid by the passenger is $5800

 profit got by company is $800
```

Q1. Input a number from the keyboard. Calculate the square of the number.

Ans.

INPUT:

```
x=input ("number ")

square=int (x) **2

 print ("square of a number", square)
```

OUTPUT:

```
number 143 square of a number 20449
```

Q2.Input a number from the keyboard. Calculate the cube of the number.

Ans.

INPUT:

```
x=int (input("number"))
cube=x**3
print ("cube of number, cube)
```

OUTPUT:

```
number143
cube of number 2924207
```

Q3. Input a number from the keyboard. Calculate 10th power of the number.

Ans.

INPUT:

```
x=int (input ("number we taken is "))
power=x**10
print ("10th power of a number is", power)
```

OUTPUT:

```
number we taken is 6
10th power of a number is 60466176
```

Q4. Shyam has decided to buy a computer. The shopkeeper said that the main memory, RAM is available in GBs. But Shyam only knew calculation in MBS and he has to tell his father how many MB he is buying so that his father will pay him accordingly. Shyam remembered that 1 GB = 1024 MB as per his teacher. What will be the size of RAM in MBS if the shopkeeper say that RAM size is 10 GB?

Ans.

INPUT:

```
ram=int (input ("ram of pc "))
GB=1024*ram
```

```
print ("ram of the pc is", GB)
```

OUTPUT:

```
ram of pc 10 ram of the pc is 10240
```

Q5. A single bit in binary can represent two numbers. Similarly, two binary bits can represent four numbers. Then, ten binary digits can represent how many numbers.

Ans.

INPUT:

```
single_=2 double_=single_*2
ten=10*(double_//single_)
print(“single bit binary contains”,single_,”numbers”)
print(“two binary bits contains”,double_,”numbers”)
print(“ten binary bits contains”,ten,”nunbers”)
```

OUTPUT:

```
Single bit binary contains 2 numbers
Two binary bits contains 4 numbers
Ten binary bits contains 20 numbers
```

Q6. Write a program to add two numbers. Note that the input numbers can be anything.

Ans.

INPUT:

```
x=int (input ("value of x is "))
y=int (input ("value of y is "))
sum=x + y
print ("sum of x & y is ", sum)
```

OUTPUT:

value of x is 6 value of y is 5

sum of x & y is 11

Q7. Write a program to divide two numbers. You must read the numbers from outside the program.

Ans.

INPUT:

```
x=int (input ("value of x is "))
y=int (input ("value of y is "))
div=x//y
print ("divide of x & y is ", div)
```

OUTPUT:

value of x is 6

value of y is 2

divide of x & y is 3

Q8. Write a program to calculate the exponential of the given base and exponent. Hintcalculate x to the power y.

Ans.

INPUT:

```
x=int (input ("value of x is "))
y=int (input ("value of y is "))
power=x**y
print ("x to the power y is ", power)
```

OUTPUT:

value of x is 2

value of y is 5

x to the power y is 32

Q9. Write a program to calculate number of bench required for the students. Five students can sit in a single bench. Note that the number of students can be anything. Test your program with 100, 155, 193, 204, 519 students.

Ans.

INPUT:

```
Student= int (input ("number of students are "))
 bench=student//5
print ("no. of bench required for this no. of student are “, bench)
 number of students are 100
no. of bench required for this no. of student are 20
```

Q10. Write a program to do the following for a school regarding seating arrangement. Seven students can sit in a single bench. Note that the number of students can be anything. It is a rule that the school will provide benchs if it full only, otherwise, the student has to sit on the floor. For example, if there are 8 students then the school provides 1 bench only, the remaining 1 student has to sit on the floor. You have to say the number of bench required as well as the number of students sitting on the floor. Test your program with 100, 140, 193, 204, 519 students.

Ans.

INPUT:

```
Students= int (input ("number of students are "))
Bench= students//7
Print ("no. of bench required for this no. of students are ", bench)
students_on_the_bench=bench* 7
 print ("students sitting on the bench are ", students_on_the_bench)
students_on_flour =students-students_on_the_bench
print("students sitting on flour are”, students_on_flour)
```

OUTPUT:

number of students are 100

no. of bench required for this no. of students are 14

students sitting on the bench are students sitting on flour are 298

Q11. Write a program to find the bigger among two numbers. You need to input the numbers through keyboard. You have to say which one is bigger.

Ans.

INPUT:

```
x=int (input ("number we taken for x "))
y=int (input ("number we taken for y ")) i
f (x>y):
        print (x, "is bigger")
        else:
         print (y, "is bigger")
```

OUTPUT:

number we taken for x 6

number we taken for y 1

6 is bigger

#1

INPUT:

```
if "hello":
   print("The condition evaluted to TRUE")
else:
   print("The condition evaluted to FALSE")
```

OUTPUT:

The condition evaluted to TRUE

#2

INPUT :

```
if {"a":34}:
   print("The condition evaluted to TRUE")
else:
   print("The condition evaluted to FALSE")
```

OUTPUT:

The condition evaluted to TRUE

#3

INPUT:

```
a_number=9
if a_number%2==0:
   pass
elif a_number%3==0:
   print("{} is division by 3 but not divisible by2".format(a_number))
```

OUTPUT:

9 is division by 3 but not divisible by2

#4

INPUT:

```
result=1
i=1
while i<=100:
  result=result*i
   i=i+1
print("The factorial of 100 is : {}".format(result))
```

OUTPUT:

```
The factorial of 100 is : 933262154439441526816992388562667004907159682643816214685929638952175999932299156089414639761565182862536979208272237582511852109168640000000000000000000000000
```

#5

INPUT:

```
%%time

result=1
i=1

while i <= 1000:
   result*= i
   i+=1
print(result)
```

OUTPUT:

```
402387260077093773543702433923003985719374864210714632543799910429938512398629020592044208486969404800479988610197196058631666872994808558901323829669944590997424504087073759918823627727188732519779505950995276120874975462497043601418278094646496291056393887437886487337119181045825783647849977012476632889835955735432513185323958463075557409114262417474349347553428646576611667797396668820291207379143853719588249808126867838374559731746136085379534524221586593201928090878297308431392844403281231558611036976801357304216168747609675871348312025478589320767169132448426236131412508780208000261683151027341827977704784635868170164365024153691398281264810213092761244896359928705114964975419909342221566832572080821333186116811553615836546984046708975602900950537616475847728421889679646244945160765353408198901385442487984959953319101723355556602139450399736280750137837615307127761926849034352625200015888535147331611702103968175921510907788019393178114194545257223865541461062892187960223838971476088506276862967146674697562911234082439208160153780889893964518263243671616762179168909779911903754031274622289988005195444414282012187361745992642956581746628302955570299024324153181615
```

72104658320367869061172601587835207515162842255402651704833042261439742869
33061690897968482590125458327168226458066526769958652682272807075781391858
17888965220816434834482599326604336766017699961283186078838615027946595513
11565520360939881806121385586003014356945272242063446317974605946825731037
90084024432438465657245014402821885252470935190620929023136493273497565513
95872055965422874977401141334696271542284586237738753823048386568897646192
73838149001407673104466402598994902222217659043399018860185665264850617997
02356193897017860040811889729918311021171229845901641921068884387121855646
12496079872290851929681937238864261483965738229112312502418664935314397013
74285319266498753372189406942814341185201580141233448280150513996942901534
83077644569099073152433278288269864602789864321139083506217095002597389863
55427719674282224875758676575234422020757363056949882508796892816275384886
33969099598262809561214509948717012445164612603790293091208890869420285106
40182154399457156805941872748998094254742173582401063677404595741785160829
23013535808184009699637252423056085590370062427124341690900415369010593398
38357779394109700277534720000000000000000000000000000000000000000000000000
00000000000000000000000000000000000000000000000000000000000000000000000000
00000000000000000000000000000000000000000000000000000000000000000000000000
00000000000000000000000000000000000000000000000000
Wall time: 0 ns

#6
INPUT:

```
line='*'

max_lenght=10



while len(line) <= max_lenght:

    print(line)

    line+="*"

while len(line) > 0:

    print(line)

    line=line[:-1]
```

OUTPUT:

```
*
**
***
****
```

```
*****
******
*******
********
*********
**********
***********
**********
*********
********
*******
******
*****
****
***
**
*
```

#6
INPUT:

```
line='*'

max_lenght=10


while len(line) <= max_lenght:
    print(line)
    line+="*"
while len(line) > 0:
    print(line)
    line=line[:-1]
```

OUTPUT:

```
*
**
***
****
*****
******
*******
********
```

```
*********
**********
***********
**********
*********
********
*******
******
*****
****
***
**
*
```

#6

INPUT:

```
line='*'

max_lenght=10


while len(line) <= max_lenght:

    print(line)

    line+="*"

while len(line) > 0:

    print(line)

    line=line[:-1]
```

OUTPUT:

```
*
**
***
****
*****
******
*******
********
*********
**********
***********
**********
```

```
*********
********
*******
******
*****
****
***
**
*
```

#1

PROGRAM:

```
rsum=0.0
for i in range (1,101):
    rsum=rsum+1.0/i
print("sum is ",rsum)
```

OUTPUT:

```
sum is  5.187377517639621
```

#2

PROGRAM:

```
n=int(input(""))
for i in range(1,11):
    print(n,"X",i,"=",n*i)
```

OUTPUT:

```
7
7 X 1 = 7
7 X 2 = 14
7 X 3 = 21
7 X 4 = 28
7 X 5 = 35
7 X 6 = 42
7 X 7 = 49
7 X 8 = 56
7 X 9 = 63
```

7 X 10 = 70

#3

PROGRAM:

```
name='rajesh'

name[3:]
```

OUTPUT:

```
'esh'
name[0:3]

'raj'
name[:3]

'raj'
print(name[0])

r
print(name[-1])

h
```

#4

PROGRAM:

```
i=1

result=1


while i <= 100:
    result *= i
    if i == 42:
        print('magic number 42 reached ! stooping execution..')
        break
    i += 1
print("i:",i)

print("result",result)
```

OUTPUT:

magic number 42 reached ! stooping execution..
i: 42
result 1405006117752879898543142606244511569936384000000000

#5

PROGRAM:

```
i=1

result=1


while i < 20:

    i += 1

    if i % 2 !=0:

        print("skipping {}".format(i))

        continue

    print("multiplying with {}".format(i))

    result=result*i


print("i:",i)

print("result",result)
```

OUTPUT:

multiplying with 2
skipping 3
multiplying with 4
skipping 5
multiplying with 6
skipping 7
multiplying with 8
skipping 9
multiplying with 10
skipping 11
multiplying with 12
skipping 13
multiplying with 14

skipping 15
multiplying with 16
skipping 17
multiplying with 18
skipping 19
multiplying with 20
i: 20
result 3715891200

#6
PROGRAM:

```
for char in 'monday':

    print(char)
```

OUTPUT:

```
m
o
n
d
a
y
```

#7
PROGRAM:

```
for char in 'Rajesh':

    print(char)
```

OUTPUT:

```
R
a
j
e
s
h
```

#8
PROGRAM:

```
for char in 'wedsneday':

    print(char)
```

OUTPUT:

w
e
d
s
n
e
d
a
y

#9

PROGRAM:

```
for i in range(8):
    print(i)
```

OUTPUT:

0
1
2
3
4
5
6
7

#10

PROGRAM:

```
for i in range(3,10):
    print(i)
```

OUTPUT:

3
4
5
6
7
8
9

#11

PROGRAM:

```
for i in range(3,14,4):
    print(i)
```

OUTPUT:

3
7
11

#12
PROGRAM:

```
days=["monday","tuesday","wednesday","thursday","friday","saturday","sunday"]

for day in days:

    print(day)
```

OUTPUT:

monday
tuesday
wednesday
thursday
friday
saturday
Sunday

#13

PROGRAM:

```
for fruit in ['apple','banana','guava','pandu']:

    print("here's a fruit : ", fruit)
```

OUTPUT:

here's a fruit : apple
here's a fruit : banana
here's a fruit : guava
here's a fruit : pandu

#14
PROGRAM:

```
a_list=["monday",'tuesday',"wednesday","thursday","friday"]



for i in range(len(a_list)):
```

```
    print("The value at position {} is {}.". format(i,a_list[i]))
```

OUTPUT:

```
The value at position 0 is monday.
The value at position 1 is tuesday.
The value at position 2 is wednesday.
The value at position 3 is thursday.
The value at position 4 is friday.
```

#15

PROGRAM:

```
for i,val in enumerate(a_list):

    print('The value at potision {} is {}.'.format(i,val))
```

OUTPUT:

```
The value at potision 0 is monday.
The value at potision 1 is tuesday.
The value at potision 2 is wednesday.
The value at potision 3 is thursday.
The value at potision 4 is friday.
```

#1: Assign your name to the variable name.

PROGRAM:

```
name="virat"
print("my name is",name)
```

OUTPUT:

```
my name is virat
```

#2: Assign your age (real or fake) to the variable age.

PROGRAM:

```
age=18
print("my age is",age)
```

OUTPUT:

```
my age is 18
```

#3: Assign a boolean value to the variable has_android_phone.

PROGRAM:

```
has_android_phone=True
name,age,has_android_phone
```

OUTPUT:

```
('virat', 18, True)
```

#4: Create a dictionary person with keys “Name”,”Age”,”HasAndroidPhone” **and values using the variables defined above.**

PROGRAM:

```
person={"Name":name,
        "Age":age,
        "Android phone":has_android_phone
       }
print("{} is aged {} , and owns an {} .".format(
    person["Name"],
    person["Age"],
    "Android phone" if person["Android phone"] else "iPhone"
))
```

OUTPUT:

```
virat is aged 18 , and owns an Android phone .
```

#5: Create a list containing the following 3 elements.

PROGRAM:

```
my_list=["green","kitty","Rx100"]
my_list
```

OUTPUT:

```
['green', 'kitty', 'Rx100']
```

#6: Complete the following print **and if statements by accessing the appropriate elements from** my_list.

PROGRAM:

```
print("{} is my favourite color ".format(my_list[0]))
```

OUTPUT:

green is my favourite color

PROGRAM:

```
print("i have a pet named as {}".format(my_list[1]))
```

OUTPUT:

i have a pet named as kitty

PROGRAM:

```
if my_list:
    print(" I  have previous programming experience")
else:
    print("I do not have previous programming experience")
```

OUTPUT:

I have previous programming experience

#7: Add your favourite single digit number to the end of the list using the appropriate list method.

PROGRAM:

```
my_list[len(my_list):]=["7"]
my_list
```

OUTPUT:

['green', 'kitty', 'Rx100', '7']

#8: Remove the first element of the list, using the appropriate list method.

PROGRAM:

```
del (my_list[0])
my_list
```

OUTPUT:

['kitty', 'Rx100', '7']

#9: Complete the print statement below to display the number of elements in my_list.

PROGRAM:

```
print("The list has {} elements.".format(len(my_list)))
```

OUTPUT:

The list has 3 elements.

#10: Calculate and display the sum of all the number divisible by 7 between 18 and 534 i.e. 21+28+35+.....525+532.

PROGRAM:

```
sum_of_numbers=0.0
for i in range(18,534):
    if i%7==0:
        sum_of_numbers+=i
print("The sum of all the number divisible by 7 between 18 and 534 is
",sum_of_numbers)
```

OUTPUT:

The sum of all the number divisible by 7 between 18 and 534 is 20461.0

#11: A travel company wants to fly a plane to the Bahamas. Flying the plane costs 5000 dollars. So far, 29 people have signed up for the trip. If the company charges 200 dollars per ticket. What is the profit made by the company?

PROGRAM:

```
cost_of_flying_plane=5000
print("Total amount required to fly a plan in air is",cost_of_flying_plane)
number_of_passengers=29
print("{} numbers of passengers signed".format(number_of_passengers))
price_of_ticket=200
print("cost of a ticket is ",price_of_ticket)
total_amount_of_passengers=number_of_passengers*price_of_ticket
print("total amount given by passengers
is",total_amount_of_passengers)
profit=total_amount_of_passengers-cost_of_flying_plane
print("The company makes of a profit of {} dollars".format(profit))
```

OUTPUT:

Total amount required to fly a plan in air is 5000
29 numbers of passengers signed
cost of a ticket is 200
total amount given by passengers is 5800

The company makes of a profit of 800 dollars