

Practise Questions

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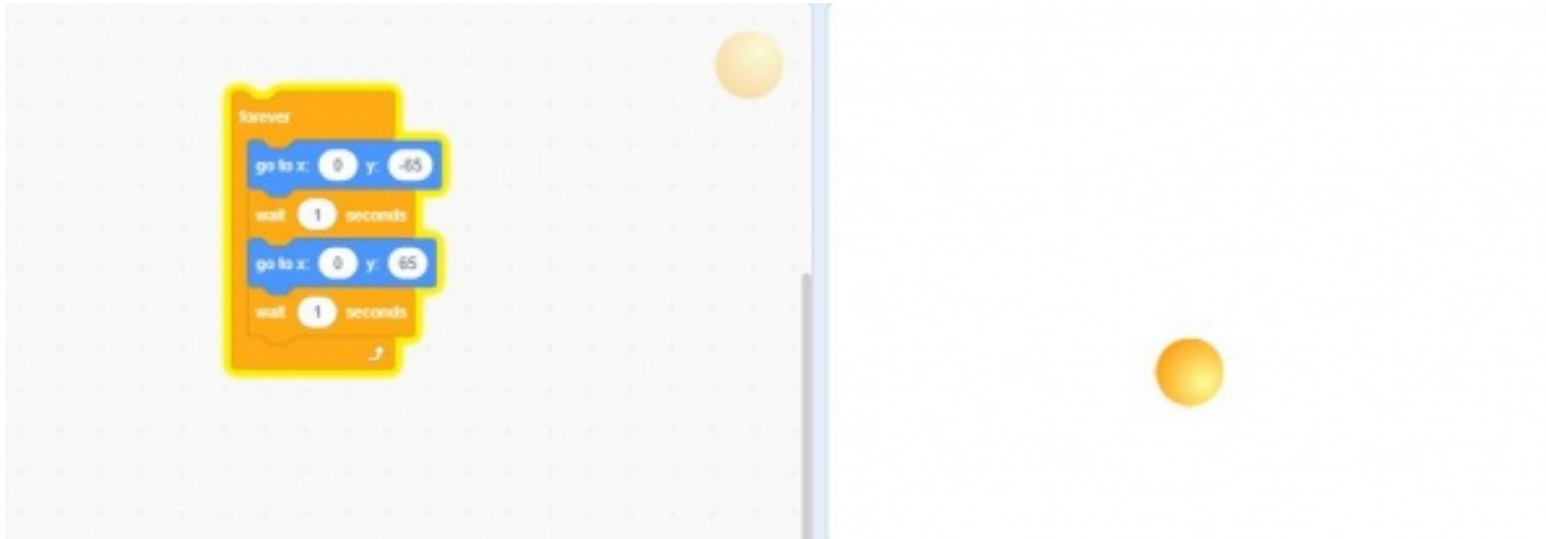
Q1. What is the importance of programming?

Programming is an art of solving problems with logical thinking. It helps to find and implement solutions fast.

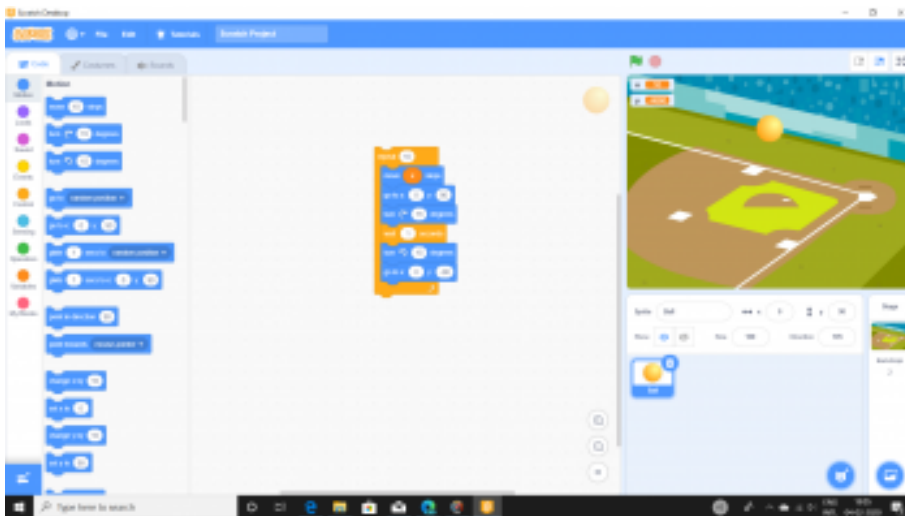
Q2. Name the first high-level programming language developed. Write a few lines about it.

Ans2. The first high-level programming language for a computer was Plankalkül, which was developed by Konrad Zuse for the Z3(name of his computer) between 1943 and 1945 though it was never implemented until 1998. It had a notion of subroutines with non-sequential order of execution, branching based on logical statements (IF THEN block) and loops such as FOR.

Q3. Create a scratch program for a bouncing ball. You can write the set of instructions here or upload a screenshot of it.



(/jocwiki/index.php/File:Example.jpg)



(/jocwiki/index.php/File:Bouncing-ball1.png)

Q4. Create a scratch program for the CITY BUS sprite moving, stopping for 20 seconds and again moving ahead.

Q5. Write a code for which prints all even numbers between 1 to 50.

ans 1. for i in range(1,26):

```
print(2*i)
```

ans 2. //even numbers between 1 to 50

```
i=0
while(i<=48):
    i=i+2
    print(i)
```

Q6. Write a code which prints the Fibonacci Sequence upto 100.

Fibonacci Sequence : A series of numbers in which each number (Fibonacci number) is the sum of the two preceding numbers starting from 0 . The simplest is the series 0, 1, 1, 2, 3, 5, 8, etc

Code :

```
n =0
```

```
i = 1
```

```
l = 0
```

```
print (n ,i , end = " ")
```

```
while (l < 100):
```

```
    l = n + i
```

```
    if (l < 100):
```

```
        print ( l, end = " ")
```

```
    n = i
```

```
    i = l
```

OUTPUT :

0 1 1 2 3 5 8 13 21 34 55 89

Q7. Write a code which prints all the palindrome numbers between 100 and 1000. For ex, 121 is a palindrome number.

Code 1 (only applicable for 3 digit numbers) :

```
print ("The palindrome numbers between 100 and 1000 are : ")
```

```
for i in range (100,1000) :
```

```
    i = int(i)

    n = int(i % 10)
    m = int(i / 100)

    if (n==m) :
        print ( i, end = ", " )
```

```
print (".....")
```

OUTPUT :

The palindrome numbers between 100 and 1000 are :

101, 111, 121, 131, 141, 151, 161, 171, 181, 191, 202, 212, 222, 232, 242, 252, 262, 272, 282, 292, 303, 313, 323, 333, 343, 353, 363, 373, 383, 393, 404, 414, 424, 434, 444, 454, 464, 474, 484, 494, 505, 515, 525, 535, 545, 555, 565, 575, 585, 595, 606, 616, 626, 636, 646, 656, 666, 676, 686, 696, 707, 717, 727, 737, 747, 757,

767, 777, 787, 797, 808, 818, 828, 838, 848, 858, 868, 878, 888, 898, 909, 919, 929, 939, 949, 959, 969, 979, 989, 999,

Code 2 (Universal Case) :

```
print ("The palindrome numbers between 100 and 1000 are : ")
```

```
for i in range (100,1000) :
```

```
    m = 0
    k= i
    while (i!=0):                                //reversing the number//
        n = int(i % 10)
        m= m*10 + n
        i = int(i/10)

    if (k==m) :
        print ( k, end = ", " )
```

```
print (".....")
```

OUTPUT :

The palindrome numbers between 100 and 1000 are :

101, 111, 121, 131, 141, 151, 161, 171, 181, 191, 202, 212, 222, 232, 242, 252, 262, 272, 282, 292, 303, 313, 323, 333, 343, 353, 363, 373, 383, 393, 404, 414, 424, 434, 444, 454, 464, 474, 484, 494, 505, 515, 525, 535, 545, 555, 565, 575, 585, 595, 606, 616, 626, 636, 646, 656, 666, 676, 686, 696, 707, 717, 727, 737, 747, 757, 767, 777, 787, 797, 808, 818, 828, 838, 848, 858, 868, 878, 888, 898, 909, 919, 929, 939, 949, 959, 969, 979, 989, 999,

Alternate Code-----

for i in range(100, 1000):

```
i = str(i)
```

```
ri = i[::-1]
```

```
if ri==i:
```

```
print(i, end = '  ')
```

Output-----

Will be the same above without separator(,)

Q8. Write a code which takes an array as input from the user and output is the average of the elements of the array. Try writing a code without using the Numpy library.

.....The code.....

```
n = input("Enter any number :")
```

```
sum = 0
```

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

```
    sum = sum + int(n[i])
```

```
print("Mean of the individual digits in that number is ",sum/(len(n)))
```

I think this is not the correct code for the question

Thanks for the feedback I again tried in my Anaconda and it worked. Request you to give me the screen print of the case when it failed or just mention the test case for testing.

!!

If tried with minus number or decimal numbers, of course, will need improvement.

[illegible]

Solution:

CODE

```
a=int(input("enter limit value:"))
```

sum=0

```
for i in range(0,a):
```

```
ele=int(input())
```

```
sum=sum+ele
```

$$\text{avg} = \text{sum} / a$$

```
Print("average of array=",avg)
```

OUTPUT

enter limit value:6

7

-6

8

-9

4

3

average of array=1.1666666666666667

#Alternate solution:

```
size=(int(input("Enter the size of array")))
```

```
n=[]
```

```
for i in range(size):
```

```
    n.append(int(input()))
```

```
avg=0
```

```
sum=0
```

```
for i in n:
```

```
    sum=sum+i
```

```
avg=sum/size
```

```
print("Average is ",avg)
```

output:

Enter the size of array5

12

21

22

33

12

Average is 20.0

Q9. Write a code which takes input as an integer (between 1 and 100) from the user and prints fizz for all the multiples of 2 and buzz for the multiples of 3, fizzbuzz for all the multiples of 2 and 3.

```
num=(int(input("Enter any number between 1 to 100")))
```

```
if((num>0)or(num<100)):
```

```
    print("Error ! Please enter the valid number.")
```

```
else:
```

```
    for i in range(1,num+1):
```

```
        if((i%2==0)and(i%3==0)):
```

```
            print("fizzbuzz")
```

```
        elif(i%2==0):
```

```
            print("fizz")
```

```
        elif(i%3==0):
```

```
            print("buzz")
```

```
        else:
```

```
            print(i)
```

Q10. Count the number of even integers in a given array

```
n = list(map(int,input().split()))
```

```
count = 0
```

```
for i in n:
```

```
    if i%2 == 0:  
        count+=1
```

```
print(count)
```

Q11. Write a code to print alternate alternate English alphabets.

```
import string
```

```
alterAlpha = string.ascii_lowercase[::2]
```

```
for char in alterAlpha:
```

```
print(char,end=' ')
```

OUTPUT-----

a c e g i k m o q s u w y

--- Q12. **Write a code to print all perfect cubes between 1 to 100.**

Code-----

```
for i in range(1,101):
```

```
    cube = i**3
```

```
    if cube < 100
```

```
        print(cube)
```

output-----

1 8 27 64

--- Q13. **Write a code to print all the number between 1 to 100, whose digits sum to 9.**

Sol:-

def sum_digit():

```
sum=0
while(i!=0):
    sum=sum+int(i%10)
    i=int(i/10)
return sum
```

for i in range(1,101):

```
if(sum_digit(i)==9):
    print(i)
```

output:- 9 18 27 36 45 54 63 82 81 90

Q14. Write a code which displays magic squares of size 2.

Is it feasible to have size 2 magic square? Correct. Magic squares of size 2 is not possible. Why?

Q15. Write a code to print 10 random numbers between 0 and 100, such that one number is between 1 to 10, second number is between 11 and 20, third is between 21 and 30, and so on...

import random
x=0 while x==0:

```
a = random.randint(1,100)
if a in range(1,10):
    print(a)
    x=1
```

x=0 while x==0:

```
a = random.randint(1,100)
if a in range(11,20):
    print(a)
    x=1
```

x=0 while x==0:

```
a = random.randint(1,100)
if a in range(21,30):
    print(a)
    x=1
```

x=0 while x==0:


```
a = random.randint(1,100)
if a in range(31,40):
    print(a)
    x=1
```

x=0 while x==0:

```
a = random.randint(1,100)
if a in range(41,50):
    print(a)
    x=1
```

x=0 while x==0:

```
a = random.randint(1,100)
if a in range(51,60):
    print(a)
    x=1
```

x=0 while x==0:

```
a = random.randint(1,100)
if a in range(61,70):
    print(a)
    x=1
```

x=0 while x==0:

```
a = random.randint(1,100)
if a in range(71,80):
    print(a)
    x=1
```

x=0 while x==0:

```
a = random.randint(1,100)
if a in range(81,90):
    print(a)
    x=1
```

x=0 while x==0:

```
a = random.randint(1,100)
if a in range(91,100):
    print(a)
    x=1
```

Sol:-

import random as r

i=1

j=10

```
while(j<=100):
```

```
    print(r.randint(i,j))
```

```
    i+=10
```

```
    j+=10
```

Output:- Output changes for every execution

Q16. Write a code to print 5 heads and 5 tails in any order, using a fair coin. Sol:-

```
import random
```

```
c=1
```

```
k=1
```

```
while(1):
```

```
a=random.randint(0,1)
if(a==1 and c<=5):
    print("head")
    c+=1
if(a==0 and k<=5):
    print("tail")
    k+=1
```

Output:- Output changes for every execution

Q17. Consider 10 bins and 100 balls to be distributed in the 10 bins such that every even bin has 10 balls each. Write a code which gives as output the number of balls in each bin.

```
dict={"bin1":10,"bin2":10,"bin3":10,"bin4":10,"bin5":10,"bin6":10,"bin7":10,"bin8":10,"bin9":10,"bin10":10}
```

```
for i, j in dict.items():
```

```
    print(i, ":", j)
```

--- ---Output---

bin1 : 10

bin2 : 10

bin3 : 10

bin4 : 10

bin5 : 10

bin6 : 10

bin7 : 10

bin8 : 10

bin9 : 10

bin10 : 10

Q18. Write a code which prints 10 bins and 100 balls distributed in the bins. Print the bins as a dictionary, with key representing the bin number and value representing the number of balls in the bin in descending order.

Q19. Write a code which displays a scenario where students answer questions which are multiples of 3.

--- ---Scenario---

n = int(input("Number of questions :"))
for i in range(1,n+1):

```
if i%3 ==0:  
    print(i,end = ' ')
```

Q20. Write a code which displays elements which are unique in two lists, that is elements which are in list 1, but not in list 2 and vice versa.

--- **sol:-**

l=[5,6,7,8,52,0,36]

m=[9,6,5,3,2,4,65,69]

k=list(set(l)-set(m))

print(k)

s=list(set(m)-set(l))

```
print(s)
```

output:-

```
[0, 36, 7, 8, 52]
```

```
[65, 2, 3, 4, 69, 9]
```

Q21. Consider the numbers from 1 to 100. Write a code which prints "SUCCESS" when the sum of two random numbers in this range is above 50 and below 100.

sol:-

```
import random
```

```
k=random.randint(0,100)
```

```
m=random.randint(0,100)
```

```
if (k+m)>50 and (k+m)<100:
```

```
    print("SUCCESS")
```

Q22. Write a code which prints all possible permutations of the word "CLIFF".

Q23. Write a code which prints unique permutations of the word "APPLE".

Q24. Consider the numbers from 0 to 10. Write a code which randomly chooses a number in this range and prints HEAD if the number is greater than 5 and TAIL if the number is less than or equal to 5.

sol:-

```
import random
```

```
k=random.randint(0,10)
```

```
if k<=5:
```

```
    print("TAIL")
```

```
else:
```

```
    print("HEAD")
```

Q25. Write a code which outputs all perfect cubes between 0 to 100.

sol:-

i=0

while(i*i*i<=100):

```
print(i*i*i,end="")
```

```
i=i+1
```

output:-

0 1 8 27 64

Q26. Write a code to display the first 5 levels of the Pascal's triangle.

Q27. Write a code to print the pattern : 10 * symbols in the first row, 9 * symbols in the second row, 8 * symbols in the third row and so on.

```
for i in range(10,0,-1):
```

```
print(i*'')
```

Q28. Write a code to print the sum of the diagonal elements in a 3×3 matrix.

Source code:

```
row=3
```

```
sum=0
```

```
sum2=0
```

```
col=3
```

```
l=[[0 for i in range(col)]for j in range(row)]
```

```
for i in range(row):
```

```
    print("Enter the elements for the ",i," row")
```

```
    for j in range(col):
```

```
        l[i][j]=int(input())
```

```
for i in range(row):
```

```
for j in range(col): #left diagonal
    if(i==j):
        sum=l[i][j]+sum
```

```
for i in range(row):
```

```
for j in range(col):
    if((i-j==2 or i-j== -2) or (i==j and j==1)):
        sum2=l[i][j]+sum2 #right diagonal
```

```
print("Sum of the left diagonal is : ",sum)
```

```
print("Sum of the right diagonal is : ",sum2)
```

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