

# **RAJALAKSHMI ENGINEERING COLLEGE**

**RAJALAKSHMI NAGAR, THANDALAM – 602 105**

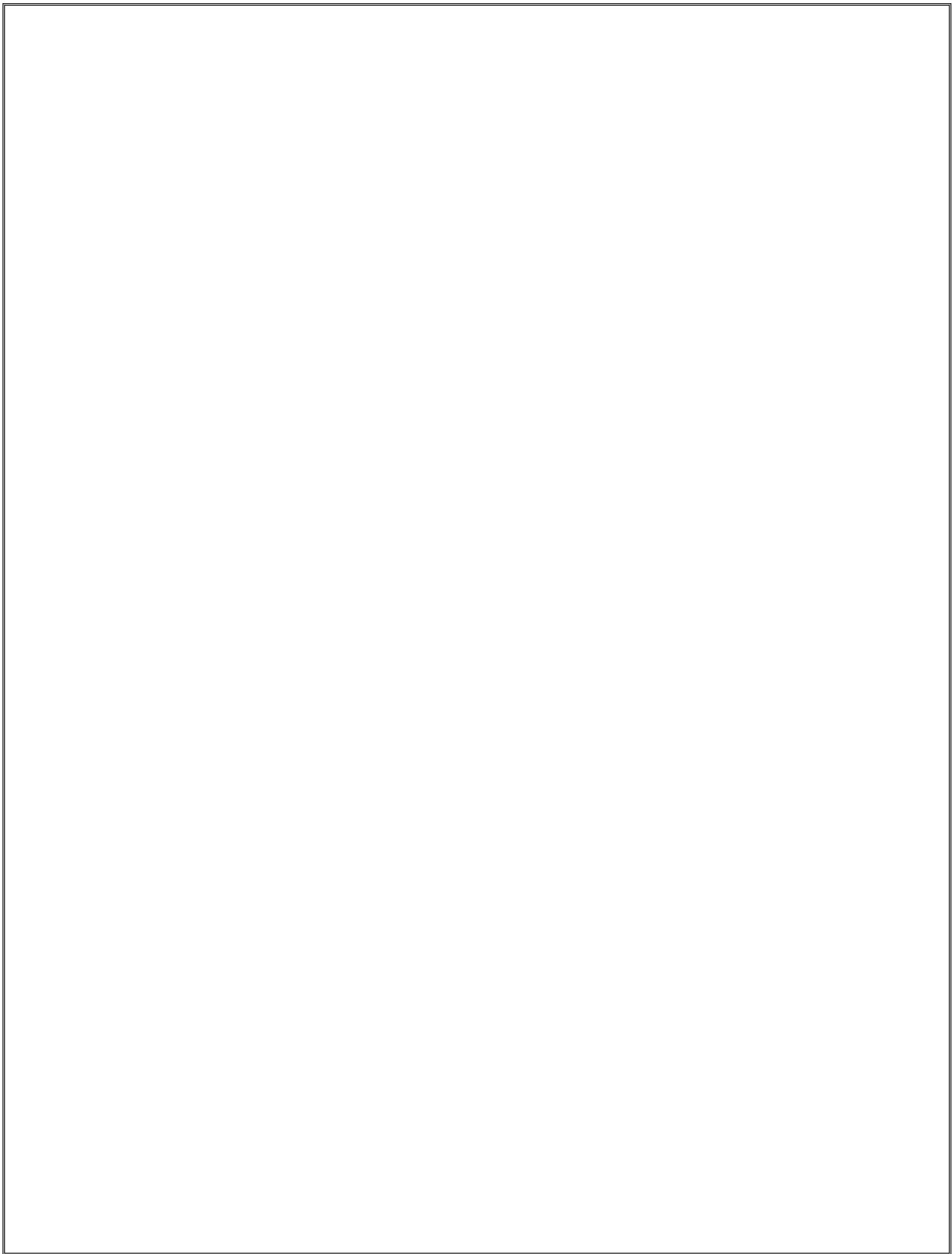


**RAJALAKSHMI  
ENGINEERING COLLEGE**

**GE23231  
PROGRAMMING USING PYTHON**

**Record Note Book**

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Year:	I
Semester:	II
Department:	CIVIL ENGINEERING
Academic Year:	2023-2024



[Dashboard](#) / [My courses](#) / [PSPP/PUP](#) / [Experiments based on Variables, Datatypes in Python.](#) / [Week1 Coding](#)

<b>Started on</b>	Thursday, 14 March 2024, 11:13 AM
<b>State</b>	Finished
<b>Completed on</b>	Thursday, 14 March 2024, 12:34 PM
<b>Time taken</b>	1 hour 21 mins
<b>Marks</b>	6.00/6.00
<b>Grade</b>	<b>100.00</b> out of 100.00

**Question 1**

Correct

Mark 1.00 out of 1.00

Write a program to convert strings to an integer and float and display its type.

Sample Input:

10

10.9

Sample Output:

10,&lt;class 'int'&gt;

10.9,&lt;class 'float'&gt;

**For example:**

Input	Result
10	10,<class 'int'>
10.9	10.9,<class 'float'>

**Answer:** (penalty regime: 0 %)

```

1 a=int(input())
2 b=float(input())
3 print(a,type(a),sep=',')
4 print(round(b,1),type(b),sep=',')

```

	Input	Expected	Got	
✓	10 10.9	10,<class 'int'> 10.9,<class 'float'>	10,<class 'int'> 10.9,<class 'float'>	✓
✓	12 12.5	12,<class 'int'> 12.5,<class 'float'>	12,<class 'int'> 12.5,<class 'float'>	✓
✓	89 7.56	89,<class 'int'> 7.6,<class 'float'>	89,<class 'int'> 7.6,<class 'float'>	✓
✓	55000 56.2	55000,<class 'int'> 56.2,<class 'float'>	55000,<class 'int'> 56.2,<class 'float'>	✓
✓	2541 2541.679	2541,<class 'int'> 2541.7,<class 'float'>	2541,<class 'int'> 2541.7,<class 'float'>	✓

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00.

**Question 2**

Correct

Mark 1.00 out of 1.00

Ramesh's basic salary is input through the keyboard. His dearness allowance is 40% of his basic salary, and his house rent allowance is 20% of his basic salary. Write a program to calculate his gross salary.

Sample Input:

10000

Sample Output:

16000

**For example:**

Input	Result
10000	16000

**Answer:** (penalty regime: 0 %)

```

1 basic_salary=int(input())
2 dearness_allowance=0.4*basic_salary
3 house_rent=0.2*basic_salary
4 gross_salary=basic_salary+dearness_allowance+house_rent
5 print(int(gross_salary))

```

	Input	Expected	Got	
✓	10000	16000	16000	✓
✓	20000	32000	32000	✓
✓	28000	44800	44800	✓
✓	5000	8000	8000	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

## Question 3

Correct

Mark 1.00 out of 1.00

Write a simple python program to find the square root of a given floating point number. The output should be displayed with 3 decimal places.

Sample Input:

8.00

Sample Output:

2.828

**For example:**

Input	Result
14.00	3.742

**Answer:** (penalty regime: 0 %)

```
1 a=float(input())
2 b=a*(1/2)
3 print(round(b,3))
```

	Input	Expected	Got	
✓	8.00	2.828	2.828	✓
✓	14.00	3.742	3.742	✓
✓	4.00	2.000	2.0	✓
✓	487	22.068	22.068	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 4**

Correct

Mark 1.00 out of 1.00

Alfred buys an old scooter for Rs. X and spends Rs. Y on its repairs. If he sells the scooter for Rs. Z ( $Z > X + Y$ ). Write a program to help Alfred to find his gain percent. Get all the above-mentioned values through the keyboard and find the gain percent.

Input Format:

The first line contains the Rs X

The second line contains Rs Y

The third line contains Rs Z

Sample Input:

10000

250

15000

Sample Output:

46.34 is the gain percent.

**For example:**

Input	Result
45500	30.43 is the gain percent.
500	
60000	

**Answer:** (penalty regime: 0 %)

```

1 buys=int(input())
2 repairs=int(input())
3 sells=int(input())
4 total_spend=buys+repairs
5 profit=sells-total_spend
6 gain_percent=profit/total_spend*100
7 print(f"{gain_percent:.2f} is the gain percent.")

```

	Input	Expected	Got	
✓	10000 250 15000	46.34 is the gain percent.	46.34 is the gain percent.	✓
✓	45500 500 60000	30.43 is the gain percent.	30.43 is the gain percent.	✓

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	5000 0 7000	40.00 is the gain percent.	40.00 is the gain percent.	✓
✓	12500 5000 18000	2.86 is the gain percent.	2.86 is the gain percent.	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 5**

Correct

Mark 1.00 out of 1.00

In many jurisdictions, a small deposit is added to drink containers to encourage people to recycle them. In one particular jurisdiction, drink containers holding one liter or less have a \$0.10 deposit and drink containers holding more than one liter have a \$0.25 deposit. Write a program that reads the number of containers of each size(less and more) from the user. Your program should continue by computing and displaying the refund that will be received for returning those containers. Format the output so that it includes a dollar sign and always displays exactly two decimal places.

Sample Input

10

20

Sample Output

Your total refund will be \$6.00.

**For example:**

Input	Result
20	Your total refund will be \$7.00.
20	

**Answer:** (penalty regime: 0 %)

```

1 container1=int(input())
2 container2=int(input())
3 refund1=container1*0.10
4 refund2=container2*0.25
5 refund=refund1+refund2
6 print(f"Your total refund will be ${refund:.2f}.")
```

	Input	Expected	Got	
✓	20 20	Your total refund will be \$7.00.	Your total refund will be \$7.00.	✓
✓	11 22	Your total refund will be \$6.60.	Your total refund will be \$6.60.	✓
✓	123 200	Your total refund will be \$62.30.	Your total refund will be \$62.30.	✓
✓	76 38	Your total refund will be \$17.10.	Your total refund will be \$17.10.	✓

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00.

**Question 6**

Correct

Mark 1.00 out of 1.00

Justin is a carpenter who works on an hourly basis. He works in a company where he is paid Rs 50 for an hour on weekdays and Rs 80 for an hour on weekends. He works 10 hrs more on weekdays than weekends. If the salary paid for him is given, write a program to find the number of hours he has worked on weekdays and weekends.

**Hint:**

If the final result(hrs) are in -ve convert that to +ve using abs() function

The `abs()` function returns the absolute value of the given number.

```
number = -20
absolute_number = abs(number)
print(absolute_number)
# Output: 20
```

**Sample Input:**

450

**Sample Output:**

weekdays 10.38

weekend 0.38

**For example:**

Input	Result
450	weekdays 10.38 weekend 0.38

**Answer:** (penalty regime: 0 %)

```
1 salary=int(input())
2 weekend_hours=abs((salary-500)/130)
3 weekday_hours=weekend_hours+10
4 print(f"weekdays {weekday_hours:.2f}")
5 print(f"weekend {weekend_hours:.2f}")
```

	Input	Expected	Got	
✓	450	weekdays 10.38 weekend 0.38	weekdays 10.38 weekend 0.38	✓
✓	500	weekdays 10.00 weekend 0.00	weekdays 10.00 weekend 0.00	✓

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	10000	weekdays 83.08 weekend 73.08	weekdays 83.08 weekend 73.08	✓
✓	6789	weekdays 58.38 weekend 48.38	weekdays 58.38 weekend 48.38	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ Week1\_Quiz

Jump to...

Operators ►

[Dashboard](#) / [My courses](#) / [PSPP/PUP](#) / [Operators and Formatting Output.](#) / [Week2\\_Coding](#)

<b>Started on</b>	Tuesday, 26 March 2024, 11:30 PM
<b>State</b>	Finished
<b>Completed on</b>	Wednesday, 27 March 2024, 12:41 AM
<b>Time taken</b>	1 hour 11 mins
<b>Marks</b>	19.00/19.00
<b>Grade</b>	<b>100.00</b> out of 100.00

**Question 1**

Correct

Mark 1.00 out of 1.00

Write a python program that takes a integer between 0 and 15 as input and displays the number of '1' s in its binary form.(Hint:use python bitwise operator.

Sample Input

3

Sample Output:

2

Explanation:

The binary representation of 3 is 011, hence there are 2 ones in it. so the output is 2.

**For example:**

Input	Result
3	2

**Answer:** (penalty regime: 0 %)

```

1 a=int(input())
2 if 0 <= a <= 15:
3     count = 0
4     while a > 0:
5         count += a & 1
6         a >>= 1
7     print(count)

```

	Input	Expected	Got	
✓	3	2	2	✓
✓	5	2	2	✓
✓	15	4	4	✓

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00.

**Question 2**

Correct

Mark 1.00 out of 1.00

Write a program that returns the last digit of the given number. Last digit is being referred to the least significant digit i.e. the digit in the ones (units) place in the given number.

The last digit should be returned as a positive number.

For example,

if the given number is 197, the last digit is 7

if the given number is -197, the last digit is 7

**For example:**

Input	Result
197	7
-197	7

**Answer:** (penalty regime: 0 %)

```

1 a=abs(int(input()))
2 b=a%10
3 print(b)

```

	Input	Expected	Got	
✓	197	7	7	✓
✓	-197	7	7	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 3**

Correct

Mark 1.00 out of 1.00

In London, every year during Dasara there will be a very grand doll show. People try to invent new dolls of different varieties. The best-sold doll's creator will be awarded with a cash prize. So people broke their heads to create dolls innovatively. Knowing this competition, Mr.Lokpaul tried to create a doll that sings only when an even number is pressed and the number should not be zero and greater than 100.

IF Lokpaul wins print true, otherwise false.

Sample Input

10

Sample Output

True

Explanation:

Since 10 is an even number and a number between 0 and 100, True is printed

**For example:**

Input	Result
101	False

**Answer:** (penalty regime: 0 %)

```

1 a=int(input())
2 if (a%2==0):
3     print("True")
4 elif(a<=100 and a!=0):
5     print("False")
6 else:
7     print("False")

```

	Input	Expected	Got	
✓	56	True	True	✓
✓	101	False	False	✓
✓	-1	False	False	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 4**

Correct

Mark 1.00 out of 1.00

Mr. X's birthday is in next month. This time he is planning to invite N of his friends. He wants to distribute some chocolates to all of his friends after the party. He went to a shop to buy a packet of chocolates. At the chocolate shop, 4 packets are there with different numbers of chocolates. He wants to buy such a packet which contains a number of chocolates, which can be distributed equally among all of his friends. Help Mr. X to buy such a packet.

Input Given:

N-No of friends

P1,P2,P3 AND P4-No of chocolates

OUTPUT:

"True" if he can buy that packet and "False" if he can't buy that packet.

SAMPLE INPUT AND OUTPUT:

5

25

12

10

9

OUTPUT

True False True False

**For example:**

Input	Result
5	True False True True
25	
23	
20	
10	

**Answer:** (penalty regime: 0 %)

```

1 N=int(input())
2 b=int(input())
3 c=int(input())
4 d=int(input())
5 e=int(input())
6 print(b%N==0,c%N==0,d%N==0,e%N==0)

```

	Input	Expected	Got	
✓	5 25 23 20 10	True False True True	True False True True	✓
✓	4 23 24 21 12	False True False True	False True False True	✓
✓	8 64 8 16 32	True True True True	True True True True	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 5**

Correct

Mark 1.00 out of 1.00

Note:

Dont use if-else. [Operators](#) alone must be used .

A team from the Rotract club had planned to conduct a rally to create awareness among the Coimbatore people to donate blood. They conducted the rally successfully. Many of the Coimbatore people realized it and came forward to donate their blood to nearby blood banks. The eligibility criteria for donating blood are people should be above or equal to 18 and his/ her weight should be above 40. There was a huge crowd and staff in the blood bank found it difficult to manage the crowd. So they decided to keep a system and ask the people to enter their age and weight in the system. If a person is eligible he/she will be allowed inside.

Write a program and feed it to the system to find whether a person is eligible or not.

**Input Format:**

Input consists of two integers that correspond to the age and weight of a person respectively.

**Output Format:**

Display True(IF ELIGIBLE)

Display False (if not eligible)

**Sample Input**

19

45

**Sample Output**

True

**For example:**

Input	Result
18	False
40	

**Answer:** (penalty regime: 0 %)

```

1 a=int(input())
2 b=int(input())
3 print(a>=18 and b>40)

```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	19 45	True	True	✓
✓	18 40	False	False	✓
✓	18 42	True	True	✓
✓	16 45	False	False	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 6**

Correct

Mark 1.00 out of 1.00

In the 1800s, the battle of Troy was led by Hercules. He was a superstitious person. He believed that his crew can win the battle only if the total count of the weapons in hand is in multiple of 3 and the soldiers are in an even number of count. Given the total number of weapons and the soldier's count, Find whether the battle can be won or not according to Hercules's belief. If the battle can be won print True otherwise print False.

**Input format:**

Line 1 has the total number of weapons

Line 2 has the total number of Soldiers.

**Output Format:**

If the battle can be won print True otherwise print False.

Sample Input:

32

43

Sample Output:

False

**For example:**

Input	Result
32	False
43	

**Answer:** (penalty regime: 0 %)

```
1 a=int(input())
2 b=int(input())
3 print(a%3==0 and b%2==0)
```

	Input	Expected	Got	
✓	32 43	False	False	✓
✓	273 7890	True	True	✓
✓	800 4590	False	False	✓

	Input	Expected	Got	
✓	6789 32996	True	True	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

### Question 7

Correct

Mark 10.00 out of 10.00

An online retailer sells two products: widgets and gizmos. Each widget weighs 75 grams. Each gizmo weighs 112 grams. Write a program that reads the number of widgets and the number of gizmos from the user. Then your program should compute and display the total weight of the parts.

Sample Input:

10

20

Sample Output:

The total weight of all these widgets and gizmos is 2990 grams.

**Answer:** (penalty regime: 0 %)

```

1 a=int(input())
2 b=int(input())
3 c=(75*a)+(112*b)
4 print(f"The total weight of all these widgets and gizmos is {c} grams.")
5

```

	Input	Expected	Got	
✓	10 20	The total weight of all these widgets and gizmos is 2990 grams.	The total weight of all these widgets and gizmos is 2990 grams.	✓

Passed all tests! ✓

Correct

Marks for this submission: 10.00/10.00.

**Question 8**

Correct

Mark 1.00 out of 1.00

The program that you create for this exercise will begin by reading the cost of a meal ordered at a restaurant from the user. Then your program will compute the tax and tip for the meal. Use your local tax rate (5 percent) when computing the amount of tax owing. Compute the tip as 18 percent of the meal amount (without the tax). The output from your program should include the tax amount, the tip amount, and the grand total for the meal including both the tax and the tip. Format the output so that all of the values are displayed using two decimal places.

Sample Input

100

Sample Output

The tax is 5.00 and the tip is 18.00, making the total 123.00

**For example:**

Input	Result
100	The tax is 5.00 and the tip is 18.00, making the total 123.00

**Answer:** (penalty regime: 0 %)

```

1 a=float(input())
2 tax=0.05
3 tip=0.18
4 tax_amount=tax*a
5 tip_amount=tip*a
6 z=a+tax_amount+tip_amount
7 print(f"The tax is {tax_amount:.2f} and the tip is {tip_amount:.2f}, making the total {z:.2f}")

```

	Input	Expected	Got	
✓	100	The tax is 5.00 and the tip is 18.00, making the total 123.00	The tax is 5.00 and the tip is 18.00, making the total 123.00	✓
✓	250	The tax is 12.50 and the tip is 45.00, making the total 307.50	The tax is 12.50 and the tip is 45.00, making the total 307.50	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 9**

Correct

Mark 1.00 out of 1.00

Mr.Ram has been given a problem kindly help him to solve it. The input of the program is either 0 or 1. IF 0 is the input he should display "C" if 1 is the input it should display "D".There is a constraint that Mr. Ram should use either logical [operators](#) or arithmetic [operators](#) to solve the problem, not anything else.

Hint:

Use ASCII values of C and D.

**Input Format:**An integer x,  $0 \leq x \leq 1$ .**Output Format:**

output a single character "C" or "D"depending on the value of x.

**Input 1:**

0

**Output 1:**

C

**Input 2:**

1

**Output 1:**

D

**For example:**

Input	Result
0	C

**Answer:** (penalty regime: 0 %)

```
1 x=int(input())
2 print(chr(67+x))
```

	Input	Expected	Got	
✓	0	C	C	✓
✓	1	D	D	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 10**

Correct

Mark 1.00 out of 1.00

Pretend that you have just opened a new savings account that earns 4 percent interest per year. The interest that you earn is paid at the end of the year, and is added to the balance of the savings account. Write a program that begins by reading the amount of money deposited into the account from the user. Then your program should compute and display the amount in the savings account after 1, 2, and 3 years. Display each amount so that it is rounded to 2 decimal places. Sample Input: 10000 Sample Output: Balance as of end of Year 1: \$10400.00. Balance as of end of Year 2: \$10816.00. Balance as of end of Year 3: \$11248.64.

**For example:**

Input	Result
10000	Balance as of end of Year 1: \$10400.00. Balance as of end of Year 2: \$10816.00. Balance as of end of Year 3: \$11248.64.

**Answer:** (penalty regime: 0 %)

```

1 a=float(input())
2 b=a*1.04
3 c=b*1.04
4 d=c*1.04
5 print(f"Balance as of end of Year 1: ${b:.2f}.")
6 print(f"Balance as of end of Year 2: ${c:.2f}.")
7 print(f"Balance as of end of Year 3: ${d:.2f}.")
8

```

	Input	Expected	Got	
✓	10000	Balance as of end of Year 1: \$10400.00. Balance as of end of Year 2: \$10816.00. Balance as of end of Year 3: \$11248.64.	Balance as of end of Year 1: \$10400.00. Balance as of end of Year 2: \$10816.00. Balance as of end of Year 3: \$11248.64.	✓
✓	20000	Balance as of end of Year 1: \$20800.00. Balance as of end of Year 2: \$21632.00. Balance as of end of Year 3: \$22497.28.	Balance as of end of Year 1: \$20800.00. Balance as of end of Year 2: \$21632.00. Balance as of end of Year 3: \$22497.28.	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ Week2\\_MCQ](#)

Jump to...

[Selection control structures ▶](#)

[Dashboard](#) / [My courses](#) / [PSPP/PUP](#) / [Algorithmic Approach: Selection control structures](#) / [Week3\\_coding](#)

<b>Started on</b>	Thursday, 28 March 2024, 11:59 AM
<b>State</b>	Finished
<b>Completed on</b>	Tuesday, 2 April 2024, 9:27 PM
<b>Time taken</b>	5 days 9 hours
<b>Overdue</b>	3 days 9 hours
<b>Marks</b>	10.00/10.00
<b>Grade</b>	<b>100.00</b> out of 100.00

**Question 1**

Correct

Mark 1.00 out of 1.00

Write a program to calculate and print the Electricity bill where the unit consumed by the user is given from test case. It prints the total amount the customer has to pay. The charge are as follows:

Unit	Charge / Unit
Upto 199	@1.20
200 and above but less than 400	@1.50
400 and above but less than 600	@1.80
600 and above	@2.00

If bill exceeds Rs.400 then a surcharge of 15% will be charged and the minimum bill should be of Rs.100/-

Sample Test Cases

Test Case 1

Input

50

Output

100.00

Test Case 2

Input

300

Output

517.50

**For example:**

Input	Result
100.00	120.00
500	1035.00

**Answer:** (penalty regime: 0 %)

```

1 a=float(input())
2 if a<200:
3     b=a*1.20
4 elif a<400:
5     b=a*1.50
6 elif a<600:
7     b=a*1.80
8 else:
9     b=a*2.00
10 if b>400:
11     b+=b*0.15
12 if b<100:
13     b=100
14 print(round(b,2))
15

```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	50	100.00	100	✓
✓	100.00	120.00	120.0	✓
✓	500	1035.00	1035.0	✓
✓	700	1610.00	1610.0	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 2**

Correct

Mark 1.00 out of 1.00

Most years have 365 days. However, the time required for the Earth to orbit the Sun is actually slightly more than that. As a result, an extra day, February 29, is included in some years to correct for this difference. Such years are referred to as leap years. The rules for determining whether or not a year is a leap year follow:

- Any year that is divisible by 400 is a leap year.
- Of the remaining years, any year that is divisible by 100 is not a leap year.
- Of the remaining years, any year that is divisible by 4 is a leap year.
- All other years are not leap years.

Write a program that reads a year from the user and displays a message indicating whether or not it is a leap year.

Sample Input 1

1900

Sample Output 1

1900 is not a leap year.

Sample Input 2

2000

Sample Output 2

2000 is a leap year.

**Answer:** (penalty regime: 0 %)

```

1 a=int(input())
2 if a%400==0:
3     print(f"{a} is a leap year.")
4 elif a%100==0:
5     print(f"{a} is not a leap year.")
6 elif a%4==0:
7     print(f"{a} is a leap year.")
8 else:
9     print(f"{a} is not a leap year.")

```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>
✓	1900	1900 is not a leap year.	1900 is not a leap year. ✓
✓	2000	2000 is a leap year.	2000 is a leap year. ✓
✓	2100	2100 is not a leap year.	2100 is not a leap year. ✓
✓	2020	2020 is a leap year.	2020 is a leap year. ✓

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00.

**Question 3**

Correct

Mark 1.00 out of 1.00

Write a program that returns the second last digit of the given number. Second last digit is being referred to the digit in the tens place in the given number.

For example, if the given number is 197, the second last digit is 9.

Note1 - The second last digit should be returned as a positive number. i.e. if the given number is -197, the second last digit is 9.

Note2 - If the given number is a single digit number, then the second last digit does not exist. In such cases, the program should return -1. i.e. if the given number is 5, the second last digit should be returned as -1

**For example:**

Input	Result
197	9
5	-1

**Answer:** (penalty regime: 0 %)

```

1 a=int(input())
2 a=abs(a)
3 b=str(a)
4 if len(b) < 2:
5     c=-1
6 else:
7     c=int(b[-2])
8 print(c)

```

	Input	Expected	Got	
✓	197	9	9	✓
✓	-197	9	9	✓
✓	5	-1	-1	✓
✓	123456	5	5	✓
✓	8	-1	-1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 4**

Correct

Mark 1.00 out of 1.00

A triangle can be classified based on the lengths of its sides as equilateral, isosceles or scalene. All three sides of an equilateral triangle have the same length. An isosceles triangle has two sides that are the same length, and a third side that is a different length. If all of the sides have different lengths then the triangle is scalene.

Write a program that reads the lengths of the three sides of a triangle from the user. Then display a message that states the triangle's type.

Sample Input 1

```
60
60
60
```

Sample Output 1

That's a equilateral triangle

Sample Input 2

```
40
40
80
```

Sample Output 2

That's a isosceles triangle

Sample Input 3

```
50
60
70
```

Sample Output 3

That's a scalene triangle

**For example:**

Input	Result
60 60 60	That's a equilateral triangle
40 40 80	That's a isosceles triangle

**Answer:** (penalty regime: 0 %)

```
1 a=int(input())
2 b=int(input())
3 c=int(input())
4 if a==b and b==c:
5     print("That's a equilateral triangle")
6 elif a==b or b==c or c==a:
7     print("That's a isosceles triangle")
8 else:
9     print("That's a scalene triangle")
10
```

	Input	Expected	Got	
✓	60 60 60	That's a equilateral triangle	That's a equilateral triangle	✓
✓	40 40 80	That's a isosceles triangle	That's a isosceles triangle	✓
✓	50 60 70	That's a scalene triangle	That's a scalene triangle	✓
✓	50 50 80	That's a isosceles triangle	That's a isosceles triangle	✓
✓	10 10 10	That's a equilateral triangle	That's a equilateral triangle	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 5**

Correct

Mark 1.00 out of 1.00

Write a program to find the eligibility of admission for a professional course based on the following criteria:

Marks in Maths  $\geq 65$

Marks in Physics  $\geq 55$

Marks in Chemistry  $\geq 50$

Or

Total in all three subjects  $\geq 180$

Sample Test Cases

Test Case 1

Input

70

60

80

Output

The candidate is eligible

Test Case 2

Input

50

80

80

Output

The candidate is eligible

Test Case 3

Input

50

60

40

Output

The candidate is not eligible

**For example:**

Input	Result
70	The candidate is eligible
60	
80	

**Answer:** (penalty regime: 0 %)

```

1 a=int(input())
2 b=int(input())
3 c=int(input())
4 if (a>=65,b>=55,c>=50) and (a+b+c>=180):
5     print("The candidate is eligible")
6 else:
7     print("The candidate is not eligible")
8

```

--	--	--	--

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	70 60 80	The candidate is eligible	The candidate is eligible	✓
✓	50 80 80	The candidate is eligible	The candidate is eligible	✓
✓	50 60 40	The candidate is not eligible	The candidate is not eligible	✓
✓	20 10 25	The candidate is not eligible	The candidate is not eligible	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 6**

Correct

Mark 1.00 out of 1.00

In this exercise you will create a program that reads a letter of the alphabet from the user. If the user enters a, e, i, o or u then your program should display a message indicating that the entered letter is a vowel. If the user enters y then your program should display a message indicating that sometimes y is a vowel, and sometimes y is a consonant. Otherwise your program should display a message indicating that the letter is a consonant.

Sample Input 1

i

Sample Output 1

It's a vowel.

Sample Input 2

y

Sample Output 2

Sometimes it's a vowel... Sometimes it's a consonant.

Sample Input3

c

Sample Output 3

It's a consonant.

**For example:**

Input	Result
y	Sometimes it's a vowel... Sometimes it's a consonant.
c	It's a consonant.

**Answer:** (penalty regime: 0 %)

```

1 a=input().lower()
2 b=["a","e","i","o","u"]
3 c=["y"]
4 if a in b:
5     print("It's a vowel.")
6 elif a in c:
7     print("Sometimes it's a vowel... Sometimes it's a consonant.")
8 else:
9     print("It's a consonant.")

```

	Input	Expected	Got	
✓	i	It's a vowel.	It's a vowel.	✓
✓	y	Sometimes it's a vowel... Sometimes it's a consonant.	Sometimes it's a vowel... Sometimes it's a consonant.	✓
✓	c	It's a consonant.	It's a consonant.	✓

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	e	It's a vowel.	It's a vowel.	✓
✓	r	It's a consonant.	It's a consonant.	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

## Question 7

Correct

Mark 1.00 out of 1.00

The length of a month varies from 28 to 31 days. In this exercise you will create a program that reads the name of a month from the user as a string. Then your program should display the number of days in that month. Display "28 or 29 days" for February so that leap years are addressed.

Sample Input 1

February

Sample Output 1

February has 28 or 29 days in it.

Sample Input 2

March

Sample Output 2

March has 31 days in it.

Sample Input 3

April

Sample Output 3

April has 30 days in it.

**For example:**

Input	Result
February	February has 28 or 29 days in it.

**Answer:** (penalty regime: 0 %)

```

1 m=input().capitalize()
2 if m=="January" or m=="March" or m=="May" or m=="July" or m=="August" or m=="October" or m=="December":
3     days=31
4 elif m=="April" or m=="June" or m=="September" or m=="November":
5     days=30
6 elif m=="February":
7     days="28 or 29"
8 else:
9     days="None"
10 print(f"{m} has {days} days in it.")

```

	Input	Expected	Got	
✓	February	February has 28 or 29 days in it.	February has 28 or 29 days in it.	✓
✓	March	March has 31 days in it.	March has 31 days in it.	✓
✓	April	April has 30 days in it.	April has 30 days in it.	✓
✓	May	May has 31 days in it.	May has 31 days in it.	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 8**

Correct

Mark 1.00 out of 1.00

The Chinese zodiac assigns animals to years in a 12 year cycle. One 12 year cycle is shown in the table below. The pattern repeats from there, with 2012 being another year of the dragon, and 1999 being another year of the hare.

Year Animal

2000 Dragon

2001 Snake

2002 Horse

2003 Sheep

2004 Monkey

2005 Rooster

2006 Dog

2007 Pig

2008 Rat

2009 Ox

2010 Tiger

2011 Hare

Write a program that reads a year from the user and displays the animal associated with that year. Your program should work correctly for any year greater than or equal to zero, not just the ones listed in the table.

Sample Input 1

2010

Sample Output 1

2010 is the year of the Tiger.

Sample Input 2

2020

Sample Output 2

2020 is the year of the Rat.

**Answer:** (penalty regime: 0 %)

```

1 a=int(input())
2 b=a%12
3 if b==0:
4     c="Monkey"
5 elif b==1:
6     c="Rooster"
7 elif b==2:
8     c="Dog"
9 elif b==3:
10    c="Pig"
11 elif b==4:
12    c="Rat"
13 elif b==5:
14    c="Ox"
15 elif b==6:
16    c="Tiger"
17 elif b==7:
18    c="Hare"
19 elif b==8:
20    c="Dragon"
21 elif b==9:
22    c="Snake"
23 elif b==10:
24    c="Horse"
25 else:
26    c="Sheep"
27 print(f"{a} is the year of the {c}.")
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	2010	2010 is the year of the Tiger.	2010 is the year of the Tiger.	✓
✓	2020	2020 is the year of the Rat.	2020 is the year of the Rat.	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 9**

Correct

Mark 1.00 out of 1.00

IN / OUT

Ms. Sita, the faculty handling programming lab for you is very strict. Your seniors have told you that she will not allow you to enter the week's lab if you have not completed atleast half the number of problems given last week. Many of you didn't understand this statement and so they requested the good programmers from your batch to write a program to find whether a student will be allowed into a week's lab given the number of problems given last week and the number of problems solved by the student in that week.

Input Format:

Input consists of 2 integers.

The first integer corresponds to the number of problems given and the second integer corresponds to the number of problems solved.

Output Format:

Output consists of the string "IN" or "OUT".

Sample Input and Output:

Input

8

3

Output

OUT

**For example:**

Input	Result
8	OUT
3	

**Answer:** (penalty regime: 0 %)

```

1 a=int(input())
2 b=int(input())
3 if b>= a/2:
4     print("IN")
5 else:
6     print("OUT")

```

--	--	--	--	--

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	8 3	OUT	OUT	✓
✓	8 5	IN	IN	✓
✓	20 9	OUT	OUT	✓
✓	50 31	IN	IN	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 10**

Correct

Mark 1.00 out of 1.00

Three numbers form a Pythagorean triple if the sum of squares of two numbers is equal to the square of the third.

For example, 3, 5 and 4 form a Pythagorean triple, since  $3^2 + 4^2 = 25 = 5^2$

You are given three integers, a, b, and c. They need not be given in increasing order. If they form a Pythagorean triple, then print "yes", otherwise, print "no". Please note that the output message is in small letters.

Sample Input

3  
5  
4

Sample Output

yes

Sample Test Cases

Test Case 1

Input

3  
5  
4

Output

yes

Test Case 2

Input

5  
8  
2

Output

no

**Answer:** (penalty regime: 0 %)

```
1 a=int(input())
2 b=int(input())
3 c=int(input())
4 if a*a+b*b==c*c or b*b+c*c==a*a or c*c+a*a==b*b :
5     print("yes")
6 else:
7     print("no")
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	3 5 4	yes	yes	✓
✓	5 8 2	no	no	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ Week3\\_mcq](#)

Jump to...

[Iteration control structures ►](#)

[Dashboard](#) / [My courses](#) / [PSPP/PUP](#) / [Algorithmic Approach: Iteration control structures.](#) / [Week4 Coding](#)

<b>Started on</b>	Sunday, 7 April 2024, 12:40 AM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 26 April 2024, 11:52 PM
<b>Time taken</b>	19 days 23 hours
<b>Overdue</b>	17 days 23 hours
<b>Marks</b>	10.00/10.00
<b>Grade</b>	<b>100.00</b> out of 100.00

**Question 1**

Correct

Mark 1.00 out of 1.00

Write a program that finds whether the given number N is Prime or not.

If the number is prime, the program should return 2 else it must return 1.

Assumption:  $2 \leq N \leq 5000$ , where N is the given number.

Example1: if the given number N is 7, the method must return 2

Example2: if the given number N is 10, the method must return 1

**For example:**

Input	Result
7	2
10	1

**Answer:** (penalty regime: 0 %)

```

1 a=int(input())
2 b=True
3 if a%2==0 and a>2:
4     b=False
5 else:
6     for i in range(3,int(a**0.5)+1,2):
7         if a%i==0:
8             b=False
9             break
10 print(2 if b else 1)

```

	Input	Expected	Got	
✓	7	2	2	✓
✓	10	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 2**

Correct

Mark 1.00 out of 1.00

Given a positive integer N, check whether it can be represented as a product of single digit numbers.

**Input Format:**

Single Integer input.

**Output Format:**

Output displays Yes if condition satisfies else prints No.

**Example Input:**

14

**Output:**

Yes

**Example Input:**

13

**Output:**

No

**Answer:** (penalty regime: 0 %)

```

1 N=int(input())
2 n=N
3 if n < 10 :
4     print("Yes")
5 else:
6     while n%2 == 0:
7         n/=2
8     while n%3==0:
9         n/=3
10    while n%5==0:
11        n/=5
12    while n%7==0:
13        n/=7
14    if n==1:
15        print("Yes")
16    else:
17        print("No")

```

	Input	Expected	Got	
✓	14	Yes	Yes	✓
✓	13	No	No	✓

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00.

**Question 3**

Correct

Mark 1.00 out of 1.00

Given an integer N, check whether N the given number can be made a perfect square after adding to it.

**Input Format:**

Single integer input.

**Output Format:**

Yes or No.

**Example Input:**

24

**Output:**

Yes

**Example Input:**

26

**Output:**

No

**For example:**

Input	Result
24	Yes

**Answer:** (penalty regime: 0 %)

```

1 N=int(input())
2 N+=1
3 s=0
4 while s*s < N:
5     s+=1
6 if s*s==N:
7     print("Yes")
8 else:
9     print("No")

```

	Input	Expected	Got	
✓	24	Yes	Yes	✓
✓	26	No	No	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 4**

Correct

Mark 1.00 out of 1.00

Write a program to return the nth number in the fibonacci series.

The value of N will be passed to the program as input.

NOTE: Fibonacci series looks like –

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, . . . and so on.

i.e. Fibonacci series starts with 0 and 1, and continues generating the next number as the sum of the previous two numbers.

- first Fibonacci number is 0,
- second Fibonacci number is 1,
- third Fibonacci number is 1,
- fourth Fibonacci number is 2,
- fifth Fibonacci number is 3,
- sixth Fibonacci number is 5,
- seventh Fibonacci number is 8, and so on.

**For example:**

Input	Result
1	0
4	2
7	8

**Answer:** (penalty regime: 0 %)

```

1 N=int(input())
2 a,b=0,1
3 if N==1:
4     n=a
5 elif N==2:
6     n=b
7 else:
8     for i in range (2,N):
9         n=a+b
10        a,b=b,n
11 print(n)

```

	Input	Expected	Got	
✓	1	0	0	✓
✓	4	2	2	✓
✓	7	8	8	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 5**

Correct

Mark 1.00 out of 1.00

A Number is said to be Disarium number when the sum of its digit raised to the power of their respective positions becomes equal to the number itself. Write a program to print number is Disarium or not.

Input Format:

Single Integer Input from stdin.

Output Format:

Yes or No.

Example Input:

175

Output:

Yes

Explanation

$$1^1 + 7^2 + 5^3 = 175$$

Example Input:

123

Output:

No

**For example:**

Input	Result
175	Yes
123	No

**Answer:** (penalty regime: 0 %)

```

1 num=int(input())
2 n=num
3 numd=0
4 while n>0:
5     n/=10
6     numd+=1
7
8 sum=0
9 n=num
10 while n>0:
11     d=n%10
12     sum+=d**numd
13     numd-= 1
14     n/=10
15 if sum==num:
16     print("Yes")
17 else:
18     print("No")
19

```

	Input	Expected	Got	
✓	175	Yes	Yes	✓
✓	123	No	No	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 6**

Correct

Mark 1.00 out of 1.00

Given a number N, find the next perfect square greater than N.

Input Format:

Integer input from stdin.

Output Format:

Perfect square greater than N.

Example Input:

10

Output:

16

**Answer:** (penalty regime: 0 %)

```
1 N=int(input())
2 n=0
3 c=0
4 while n <= N:
5     c+=1
6     n=c*c
7 print(n)
```

	Input	Expected	Got	
✓	10	16	16	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 7**

Correct

Mark 1.00 out of 1.00

Write a program to find the count of unique digits in a given number N. The number will be passed to the program as an input of type int.

Assumption: The input number will be a positive integer number  $\geq 1$  and  $\leq 25000$ .

For e.g.

If the given number is 292, the program should return 2 because there are only 2 unique digits '2' and '9' in this number

If the given number is 1015, the program should return 3 because there are 3 unique digits in this number, '1', '0', and '5'.

**For example:**

Input	Result
292	2
1015	3

**Answer:** (penalty regime: 0 %)

```

1 N=int(input())
2 u=0
3 for dt in range (10):
4     hd=False
5     temp=N
6     while temp>0:
7         if temp%10==dt:
8             hd=True
9             break
10        temp/=10
11    if hd:
12        u+=1
13 print(u)

```

	Input	Expected	Got	
✓	292	2	2	✓
✓	1015	3	3	✓
✓	123	3	3	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 8**

Correct

Mark 1.00 out of 1.00

Write a program to find the sum of the series  $1 + 11 + 111 + 1111 + \dots + n$  terms ( $n$  will be given as input from the user and sum will be the output)

Sample Test Cases

Test Case 1

Input

4

Output

1234

Test Case 2

Input

6

Output

123456

**Answer:** (penalty regime: 0 %)

```

1 n=int(input())
2 c=1
3 s=0
4 for i in range(n):
5     s+=c
6     c=c*10+1
7 print(s)

```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	4	1234	1234	✓
✓	6	123456	123456	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

## Question 9

Correct

Mark 1.00 out of 1.00

Write a program to find the count of non-repeated digits in a given number N. The number will be passed to the program as an input of type int.

Assumption: The input number will be a positive integer number  $\geq 1$  and  $\leq 25000$ .

Some examples are as below.

If the given number is 292, the program should return 1 because there is only 1 non-repeated digit '9' in this number

If the given number is 1015, the program should return 2 because there are 2 non-repeated digits in this number, '0', and '5'.

If the given number is 108, the program should return 3 because there are 3 non-repeated digits in this number, '1', '0', and '8'.

If the given number is 22, the function should return 0 because there are NO non-repeated digits in this number.

**For example:**

Input	Result
292	1
1015	2
108	3
22	0

**Answer:** (penalty regime: 0 %)

```

1 N=int(input())
2 n=0
3 do=[0]*10
4 temp=N
5 while temp>0:
6     d=temp%10
7     do[d]+=1
8     temp//=10
9 temp=N
10 while temp >0:
11     d=temp%10
12     if do[d]==1:
13         do[d]=-1
14         n+=1
15     temp//=10
16 print(n)

```

	Input	Expected	Got	
✓	292	1	1	✓
✓	1015	2	2	✓
✓	108	3	3	✓
✓	22	0	0	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 10**

Correct

Mark 1.00 out of 1.00

In mathematics, the factorial of a non-negative integer  $n$ , denoted by  $n!$ , is the product of all positive integers less than or equal to  $n$ . For example,

$$5! = 5 \times 4 \times 3 \times 2 \times 1 = 120$$

$$4! = 4 \times 3 \times 2 \times 1 = 24$$

$$9! = 9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 362880$$

Write a program to find the factorial of a given number.

The given number will be passed to the program as an input of type int.

The program is expected to calculate the factorial of the given number and return it as an int type.

Assumptions for this program:

The given input number will always be greater than or equal to 1.

Due to the range supported by int. the input numbers will range from 1 to 12.

**For example:**

Input	Result
5	120
4	24
9	362880

**Answer:** (penalty regime: 0 %)

```

1 n=int(input())
2 factorial=1
3 for i in range(1,n+1):
4     factorial*=i
5 print(factorial)

```

	Input	Expected	Got	
✓	5	120	120	✓
✓	4	24	24	✓
✓	9	362880	362880	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ Week4\\_mcq](#)

Jump to...

[Strings ►](#)

[Dashboard](#) / [My courses](#) / [PSPP/PUP](#) / [Experiments based on Strings and its operations.](#) / [Week5 Coding](#)

<b>Started on</b>	Thursday, 2 May 2024, 12:31 PM
<b>State</b>	Finished
<b>Completed on</b>	Saturday, 4 May 2024, 9:49 PM
<b>Time taken</b>	2 days 9 hours
<b>Overdue</b>	9 hours 18 mins
<b>Marks</b>	10.00/10.00
<b>Grade</b>	<b>100.00</b> out of 100.00

**Question 1**

Correct

Mark 1.00 out of 1.00

In this exercise, you will create a program that reads words from the user until the user enters a blank line. After the user enters a blank line your program should display each word entered by the user exactly once. The words should be displayed in the same order that they were first entered. For example, if the user enters:

first

second

first

third

second

then your program should display:

first

second

third

**Answer:** (penalty regime: 0 %)

```

1 | b=''
2 | try:
3 |     while True:
4 |         a=input()
5 |         if a not in b:
6 |             print(a)
7 |             b+=a
8 | except:
9 |     pass

```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	first second first third second	first second third	first second third	✓
✓	rec cse it rec cse	rec cse it	rec cse it	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 2**

Correct

Mark 1.00 out of 1.00

**Reverse a string without affecting special characters**

Given a string **S**, containing special characters and all the alphabets, reverse the string without affecting the positions of the special characters.

**Input:**

A&amp;B

**Output:**

B&amp;A

**Explanation:** As we ignore '&' and

As we ignore '&amp;' and then reverse, so answer is "B&amp;A".

**For example:**

Input	Result
A&x#	x&A#

**Answer:** (penalty regime: 0 %)

```

1 | s=input()
2 | l=0
3 | r=len(s)-1
4 | while l<r:
5 |     if('A' <=s[1] <='Z' or 'a' <=s[1] <='z') and ('A' <= s[r] <='Z' or 'a' <= s[r] <='z'):
6 |         s=s[:l] + s[r] + s[l+1:r] + s[l] + s[r+1:]
7 |         l+=1
8 |         r-=1
9 |
10 |    elif not('A' <= s[1] <='Z' or 'a' <=s[1] <='z'):
11 |        l+=1
12 |    elif not('A' <=s [r] <='Z' or 'a' <= s[r]<='z'):
13 |        r-=1
14 | print(s)

```

	Input	Expected	Got	
✓	A&B	B&A	B&A	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 3**

Correct

Mark 1.00 out of 1.00

Write a python program to count all letters, digits, and special symbols respectively from a given string

**For example:**

Input	Result
rec@123	3 3 1

**Answer:** (penalty regime: 0 %)

```

1 a=input()
2 c1=0;c2=0;c3=0
3 n=len(a)
4 for i in range (n):
5     if((a[i]>='a' and a[i]<='z')or (a[i]>='A' and a[i]<='Z')):
6         c1+=1
7     elif(a[i]>='0' and a[i]<='9'):
8         c2+=1
9     else:
10        c3+=1
11 print(c1)
12 print(c2)
13 print(c3)

```

	Input	Expected	Got	
✓	rec@123	3 3 1	3 3 1	✓
✓	P@#yn26at^&i5ve	8 3 4	8 3 4	✓
✓	abc@12&	3 2 2	3 2 2	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 4**

Correct

Mark 1.00 out of 1.00

Given a string S which is of the format USERNAME@DOMAIN.EXTENSION, the program must print the EXTENSION, DOMAIN, USERNAME in the reverse order.

**Input Format:**

The first line contains S.

**Output Format:**

The first line contains EXTENSION.

The second line contains DOMAIN.

The third line contains USERNAME.

**Boundary Condition:**

1 <= Length of S <= 100

**Example Input/Output 1:**

Input:

abcd@gmail.com

Output:

com

gmail

abcd

**For example:**

Input	Result
arvijayakumar@rajalakshmi.edu.in	edu.in rajalakshmi arvijayakumar

**Answer:** (penalty regime: 0 %)

```
1 s=input()
2 u,de=s.split('@')
3 d,e=de.split('. ',1)
4 print(e)
5 print(d)
6 print(u)
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	abcd@gmail.com	com gmail abcd	com gmail abcd	✓
✓	arvijayakumar@rajalakshmi.edu.in	edu.in rajalakshmi arvijayakumar	edu.in rajalakshmi arvijayakumar	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 5**

Correct

Mark 1.00 out of 1.00

Two string values S1, S2 are passed as the input. The program must print first N characters present in S1 which are also present in S2.

**Input Format:**

The first line contains S1.

The second line contains S2.

The third line contains N.

**Output Format:**

The first line contains the N characters present in S1 which are also present in S2.

**Boundary Conditions:**

$2 \leq N \leq 10$

$2 \leq \text{Length of } S1, S2 \leq 1000$

**Example Input/Output 1:**

Input:

```
abcbde
cdefghbb
3
```

Output:

```
bcd
```

**Note:**

b occurs twice in common but must be printed only once.

**Answer:** (penalty regime: 0 %)

```
1 s1=input()
2 s2=input()
3 n=int(input())
4 uc=""
5 fc=""
6 for char in s1:
7     if char in s2 and char not in fc:
8         uc+=char
9         fc+=char
10    if len(uc)==n:
11        break
12 print(uc)
```

	Input	Expected	Got	
✓	abcbde cdefghbb 3	bcd	bcd	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 6**

Correct

Mark 1.00 out of 1.00

Given two Strings s1 and s2, remove all the characters from s1 which is present in s2.

**Constraints**

1<= string length <= 200

**Sample Input 1**

experience  
enc

**Sample Output 1**

xpri

**Answer:** (penalty regime: 0 %)

```
1 s1=input()  
2 s2=input()  
3 r=""  
4 for char in s1:  
5     if char not in s2:  
6         r+=char  
7 print(r)
```

	Input	Expected	Got	
✓	experience enc	xpri	xpri	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

## Question 7

Correct

Mark 1.00 out of 1.00

String should contain only the words are not palindrome.

**Sample Input 1**

Malayalam is my mother tongue

**Sample Output 1**

is my mother tongue

**Answer:** (penalty regime: 0 %)

```
1 a=input()
2 a=a.lower()
3 l=a.split(' ')
4 for i in l:
5     x=list(i)
6     x.reverse()
7     x=''.join(x)
8     if(x==i):
9         continue
10    else:
11        print(i,end=' ')
```

	Input	Expected	Got	
✓	Malayalam is my mother tongue	is my mother tongue	is my mother tongue	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 8**

Correct

Mark 1.00 out of 1.00

Write a program to check if two strings are balanced. For example, strings s1 and s2 are balanced if all the characters in the s1 are present in s2. The character's position doesn't matter. If balanced display as "true" ,otherwise "false".

**For example:**

Input	Result
Yn	True
PYnative	

**Answer:** (penalty regime: 0 %)

```

1 | s1=input()
2 | s2=input()
3 | a=True
4 v for char in s1:
5 v   if char not in s2:
6 |     a=False
7 |     break
8 | print("True" if a else "False")

```

	Input	Expected	Got	
✓	Yn PYnative	True	True	✓
✓	Ynf PYnative	False	False	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 9**

Correct

Mark 1.00 out of 1.00

Write a program that takes as input a string (sentence), and returns its second word in uppercase.

For example:

If input is "Wipro Technologies Bangalore" the function should return "TECHNOLOGIES"

If input is "Hello World" the function should return "WORLD"

If input is "Hello" the program should return "LESS"

NOTE 1: If input is a sentence with less than 2 words, the program should return the word "LESS".

NOTE 2: The result should have no leading or trailing spaces.

**For example:**

Input	Result
Wipro Technologies Bangalore	TECHNOLOGIES
Hello World	WORLD
Hello	LESS

**Answer:** (penalty regime: 0 %)

```

1 a=input()
2 n=len(a)
3 i=0
4 while i<n and a[i]!=' ':
5     i+=1
6 j=i+1
7 c=""
8 while j<n and a[j]!=' ':
9     c=c+a[j]
10    j+=1
11 d=c.upper()
12 if not d:
13     d="LESS"
14 print(d)

```

	Input	Expected	Got	
✓	Wipro Technologies Bangalore	TECHNOLOGIES	TECHNOLOGIES	✓
✓	Hello World	WORLD	WORLD	✓
✓	Hello	LESS	LESS	✓

Passed all tests! ✓

 Correct

Marks for this submission: 1.00/1.00.

**Question 10**

Correct

Mark 1.00 out of 1.00

Assume that the given string has enough memory.

Don't use any extra space(IN-PLACE)

**Sample Input 1**

a2b4c6

**Sample Output 1**

aabbbbccccc

**Answer:** (penalty regime: 0 %)

```

1 a=input()
2 i=0
3 while i<len(a):
4     l=a[i]
5     i+=1
6     c=''
7     while i<len(a) and a[i].isdigit():
8         c+=a[i]
9         i+=1
10    for x in range(int(c)):
11        print(l,end='')
```

	Input	Expected	Got	
✓	a2b4c6	aabbbbccccc	aabbbbccccc	✓
✓	a12b3d4	aaaaaaaaaaabbddddd	aaaaaaaaaaabbddddd	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ Week5\\_MCQ](#)

Jump to...

[List ▶](#)

[Dashboard](#) / [My courses](#) / [PSPP/PUP](#) / [Experiments based on Lists and its operations.](#) / [Week6\\_Coding](#)

<b>Started on</b>	Tuesday, 28 May 2024, 11:55 PM
<b>State</b>	Finished
<b>Completed on</b>	Wednesday, 29 May 2024, 3:46 AM
<b>Time taken</b>	3 hours 50 mins
<b>Marks</b>	10.00/10.00
<b>Grade</b>	<b>100.00</b> out of 100.00

**Question 1**

Correct

Mark 1.00 out of 1.00

Write a Python program to check if a given list is strictly increasing or not. Moreover, If removing only one element from the list results in a strictly increasing list, we still consider the list true

Input:

n : Number of elements

List1: List of values

Output

Print "True" if list is strictly increasing or decreasing else print "False"

Sample Test Case

Input

```
7
1
2
3
0
4
5
6
```

Output

True

**Answer:** (penalty regime: 0 %)

```
1 def inc(lst):
2     return all(lst[i]<lst[i+1] for i in range(len(lst)-1))
3 def dec(lst):
4     return all(lst[i]>lst[i+1] for i in range(len(lst)-1))
5 def check(lst):
6     if inc(lst) or dec(lst):
7         return True
8     for i in range(len(lst)):
9         temp=lst[:i]+lst[i+1:]
10    if inc(temp) or dec(temp):
11        return True
12    return False
13 n=int(input())
14 lst=[]
15 for i in range(n):
16     lst.append(int(input()))
17 if check(lst):
18     print("True")
19 else:
20     print("False")
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	7 1 2 3 0 4 5 6	True	True ✓	

	Input	Expected	Got	
✓	4	True	True	✓
	2			
	1			
	0			
	-1			

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 2**

Correct

Mark 1.00 out of 1.00

Given an array A of sorted integers and another non negative integer k, find if there exists 2 indices i and j such that  $A[i] - A[j] = k$ ,  $i \neq j$ .

**Input Format**

1. First line is number of test cases T. Following T lines contain:
2. N, followed by N integers of the array
3. The non-negative integer k

**Output format**

Print 1 if such a pair exists and 0 if it doesn't.

**Example**

**Input**

```
1
3
1
3
5
4
```

**Output:**

```
1
```

**Input**

```
1
3
1
3
5
99
```

**Output**

```
0
```

**For example:**

Input	Result
1 3 1 3 5 4	1
1 3 1 3 5 99	0

**Answer:** (penalty regime: 0 %)

```
1 T=int(input())
2 result=[]
3 for i in range(T):
4     n=int(input())
5     A=[]
6     for i in range(n): ...
```

```
7     A.append(int(input()))
8     k=int(input())
9     found=False
10    start=0
11    end=1
12    while end<n:
13        if start==end:
14            end+=1
15        elif A[end] - A[start]==k:
16            result.append(1)
17            found=True
18            break
19        elif A[end] - A[start]<k:
20            end+=1
21        else:
22            start+=1
23    if not found:
24        result.append(0)
25    for results in result:
26        print(results)
```

	Input	Expected	Got	
✓	1 3 1 3 5 4	1	1	✓
✓	1 3 1 3 5 99	0	0	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 3**

Correct

Mark 1.00 out of 1.00

Consider a program to insert an element / item in the sorted array. Complete the logic by filling up required code in editable section. Consider an array of size 10. The eleventh item is the data is to be inserted.

**Sample Test Cases****Test Case 1****Input**

```
1  
3  
4  
5  
6  
7  
8  
9  
10  
11  
2
```

**Output**

ITEM to be inserted:2

After insertion array is:

```
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11
```

**Test Case 2****Input**

```
11  
22  
33  
55  
66  
77  
88  
99  
110  
120  
44
```

**Output**

ITEM to be inserted:44

After insertion array is:

```
11  
22  
33  
44
```

```

55
66
77
88
99
110
120

```

**Answer:** (penalty regime: 0 %)

```

1 s=[]
2 for i in range(10):
3     s.append(int(input()))
4 item=int(input())
5 print(f"ITEM to be inserted:{item}")
6 post=0
7 while post<len(s) and s[post]<item:
8     post+=1
9 s.insert(post,item)
10 print("After insertion array is:")
11 for element in s:
12     print(element)

```

	Input	Expected	Got	
✓	1 3 4 5 6 7 8 9 10 11 2 9 10 11	ITEM to be inserted:2 After insertion array is: 1 2 3 4 5 6 7 8 9 10 11	ITEM to be inserted:2 After insertion array is: 1 2 3 4 5 6 7 8 9 10 11	✓
✓	11 22 33 55 66 77 88 99 110 120 44 99 110 120	ITEM to be inserted:44 After insertion array is: 11 22 33 44 55 66 77 88 99 110 120	ITEM to be inserted:44 After insertion array is: 11 22 33 44 55 66 77 88 99 110 120	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 4**

Correct

Mark 1.00 out of 1.00

Determine the factors of a number (i.e., all positive integer values that evenly divide into a number) and then return the  $p^{\text{th}}$  element of the list, sorted ascending. If there is no  $p^{\text{th}}$  element, return 0.

**Example**

n = 20

p = 3

The factors of 20 in ascending order are {1, 2, 4, 5, 10, 20}. Using 1-based indexing, if  $p = 3$ , then 4 is returned. If  $p > 6$ , 0 would be returned.

**Constraints** $1 \leq n \leq 10^{15}$  $1 \leq p \leq 10^9$ 

The first line contains an integer n, the number to factor.

The second line contains an integer p, the 1-based index of the factor to return.

**Sample Case 0****Sample Input 0**

10

3

**Sample Output 0**

5

**Explanation 0**

Factoring  $n = 10$  results in {1, 2, 5, 10}. Return the  $p = 3^{\text{rd}}$  factor, 5, as the answer.

**Sample Case 1****Sample Input 1**

10

5

**Sample Output 1**

0

**Explanation 1**

Factoring  $n = 10$  results in {1, 2, 5, 10}. There are only 4 factors and  $p = 5$ , therefore 0 is returned as the answer.

**Sample Case 2****Sample Input 2**

1

1

**Sample Output 2**

1

**Explanation 2**

Factoring  $n = 1$  results in {1}. The  $p = 1^{\text{st}}$  factor of 1 is returned as the answer.

**For example:**

Input	Result
10 3	5
10 5	0

Input	Result
1	1
1	

**Answer:** (penalty regime: 0 %)

```

1 n=int(input())
2 p=int(input())
3 fact=set()
4 for i in range(1,int(n**0.5)+1):
5     if n%i==0:
6         fact.add(i)
7         fact.add(n//i)
8 sf=sorted(fact)
9 if p<=len(sf):
10    print(sf[p-1])
11 else:
12    print(0)
13

```

	Input	Expected	Got	
✓	10 3	5	5	✓
✓	10 5	0	0	✓
✓	1 1	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 5**

Correct

Mark 1.00 out of 1.00

Program to print all the distinct elements in an array. Distinct elements are nothing but the unique (non-duplicate) elements present in the given array.

**Input Format:**

First line take an Integer input from stdin which is array length n.

Second line take n Integers which is inputs of array.

**Output Format:**

Print the Distinct Elements in Array in single line which is space Separated

**Example Input:**

```
5
1
2
2
3
4
```

**Output:**

```
1 2 3 4
```

**Example Input:**

```
6
1
1
2
2
3
3
```

**Output:**

```
1 2 3
```

**For example:**

Input	Result
5 1 2 2 3 4	1 2 3 4
6 1 1 2 2 3 3	1 2 3

**Answer:** (penalty regime: 0 %)

```
1 n=int(input())
2 ele=[]
3 for i in range(n):
4     ele.append(int(input()))
5 ds=set(ele)
6 print(" ".join(map(str,sorted(ds))))
```



	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	5 1 2 2 3 4	1 2 3 4	1 2 3 4	✓
✓	6 1 1 2 2 3 3	1 2 3	1 2 3	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 6**

Correct

Mark 1.00 out of 1.00

Given an array of numbers, find the index of the smallest array element (the pivot), for which the sums of all elements to the left and to the right are equal. The array may not be reordered.

**Example**

arr=[1,2,3,4,6]

- the sum of the first three elements,  $1+2+3=6$ . The value of the last element is 6.
- Using zero based indexing, arr[3]=4 is the pivot between the two subarrays.
- The index of the pivot is 3.

**Constraints**

- $3 \leq n \leq 10^5$
- $1 \leq \text{arr}[i] \leq 2 \times 10^4$ , where  $0 \leq i < n$
- It is guaranteed that a solution always exists.

The first line contains an integer n, the size of the array arr.

Each of the next n lines contains an integer, arr[i], where  $0 \leq i < n$ .

**Sample Case 0****Sample Input 0**

```
4  
1  
2  
3  
3
```

**Sample Output 0**

```
2
```

**Explanation 0**

- The sum of the first two elements,  $1+2=3$ . The value of the last element is 3.
- Using zero based indexing, arr[2]=3 is the pivot between the two subarrays.
- The index of the pivot is 2.

**Sample Case 1****Sample Input 1**

```
3  
1  
2  
1
```

**Sample Output 1**

```
1
```

**Explanation 1**

- The first and last elements are equal to 1.
- Using zero based indexing, arr[1]=2 is the pivot between the two subarrays.
- The index of the pivot is 1.

**For example:**

Input	Result
4	2
1	
2	
3	
3	
3	1
1	
2	
1	

**Answer:** (penalty regime: 0 %)

```

1 n=int(input())
2 arr=[]
3 for i in range(n):
4     arr.append(int(input()))
5 ts=sum(arr)
6 ls=0
7 pivot=-1
8 for i in range(n):
9     rs=ts-ls-arr[i]
10 if ls==rs:
11     pivot=i
12     break
13 ls+=arr[i]
14 print(pivot)

```

	Input	Expected	Got	
✓	4 1 2 3 3	2	2	✓
✓	3 1 2 1	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

## Question 7

Correct

Mark 1.00 out of 1.00

Complete the program to count frequency of each element of an array. Frequency of a particular element will be printed once.

Sample Test Cases

Test Case 1

Input

```
7
23
45
23
56
45
23
40
```

Output

```
23 occurs 3 times
45 occurs 2 times
56 occurs 1 times
40 occurs 1 times
```

**Answer:** (penalty regime: 0 %)

```
1 n=int(input())
2 elements=[]
3 for i in range(n):
4     elements.append(int(input()))
5 processed=[]
6 for element in elements:
7     if element not in processed:
8         count=elements.count(element)
9         print(f"{element} occurs {count} times")
10    processed.append(element)
```

	Input	Expected	Got	
✓	7 23 45 23 56 45 23 40	23 occurs 3 times 45 occurs 2 times 56 occurs 1 times 40 occurs 1 times	23 occurs 3 times 45 occurs 2 times 56 occurs 1 times 40 occurs 1 times	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.



**Question 8**

Correct

Mark 1.00 out of 1.00

Write a program to print all the locations at which a particular element (taken as input) is found in a [list](#) and also print the total number of times it occurs in the [list](#). The location starts from 1.

For example, if there are 4 elements in the array:

```
5
6
5
7
```

If the element to search is 5 then the output will be:

5 is present at location 1  
 5 is present at location 3  
 5 is present 2 times in the array.

**Sample Test Cases****Test Case 1****Input**

```
4
5
6
5
7
5
```

**Output**

5 is present at location 1.  
 5 is present at location 3.  
 5 is present 2 times in the array.

**Test Case 2****Input**

```
5
67
80
45
97
100
50
```

**Output**

50 is not present in the array.

**Answer:** (penalty regime: 0 %)

```
1 n=int(input())
2 elements=[]
3 for i in range(n):
4     elements.append(int(input()))
5 search=int(input())
6 count=0
7 locations=[]
8 for index,element in enumerate (elements):
9     if element==search:
10         locations.append(index+1)
11         count+=1
```

```
        count-=1
12 if count>0:
13     for location in locations:
14         print(f"{search} is present at location {location}.")
15     print(f"{search} is present {count} times in the array.")
16 else:
17     print(f"{search} is not present in the array.")
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	4 5 6 5 7 5	5 is present at location 1. 5 is present at location 3. 5 is present 2 times in the array.	5 is present at location 1. 5 is present at location 3. 5 is present 2 times in the array.	✓
✓	5 67 80 45 97 100 50	50 is not present in the array.	50 is not present in the array.	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

## Question 9

Correct

Mark 1.00 out of 1.00

Write a Python program to Zip two given lists of lists.

Input:

m : row size

n: column size

list1 and list 2 : Two lists

Output

Zipped List : List which combined both list1 and list2

Sample test case

Sample input

```
2  
2  
1  
3  
5  
7  
2  
4  
6  
8
```

Sample Output

```
[[1, 3, 2, 4], [5, 7, 6, 8]]
```

**Answer:** (penalty regime: 0 %)

```
1 m=int(input())  
2 n=int(input())  
3 list1=[]  
4 for i in range(m):  
5     row=[int(input())for i in range(n)]  
6     list1.append(row)  
7 list2=[]  
8 for i in range(m):  
9     row=[int(input())for i in range(n)]  
10    list2.append(row)  
11 zip=[]  
12 for i in range(m):  
13     comrow=list1[i] + list2[i]  
14     zip.append(comrow)  
15 print(zip)
```

	Input	Expected	Got	
✓	2 2 1 2 3 4 5 6 7 8	[[1, 2, 5, 6], [3, 4, 7, 8]]	[[1, 2, 5, 6], [3, 4, 7, 8]] ✓	

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 10**

Correct

Mark 1.00 out of 1.00

Output is a merged array without duplicates.

**Input Format**

N1 - no of elements in array 1

Array elements for array 1

N2 - no of elements in array 2

Array elements for array2

**Output Format**

Display the merged array

**Sample Input 1**

```
5
1
2
3
6
9
4
2
4
5
10
```

**Sample Output 1**

```
1 2 3 4 5 6 9 10
```

**Answer:** (penalty regime: 0 %)

```
1 n1=int(input())
2 array1=[]
3 for i in range(n1):
4     element=int(input())
5     array1.append(element)
6 n2=int(input())
7 array2=[]
8 for i in range(n2):
9     element=int(input())
10    array2.append(element)
11 ma=list(set(array1+array2))
12 ma.sort()
13 print(' '.join(map(str,ma)))
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	5 1 2 3 6 9 4 2 4 5 10	1 2 3 4 5 6 9 10	1 2 3 4 5 6 9 10	✓
✓	7 4 7 8 10 12 30 35 9 1 3 4 5 7 8 11 13 22	1 3 4 5 7 8 10 11 12 13 22 30 35	1 3 4 5 7 8 10 11 12 13 22 30 35	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ Week6\_MCQ

Jump to...

Tuples ►

[Dashboard](#) / [My courses](#) / [PSPP/PUP](#) / [Experiments based on Tuples, Sets and its operations](#) / [Week7 Coding](#)

<b>Started on</b>	Wednesday, 29 May 2024, 8:40 PM
<b>State</b>	Finished
<b>Completed on</b>	Wednesday, 29 May 2024, 8:47 PM
<b>Time taken</b>	7 mins 7 secs
<b>Marks</b>	5.00/5.00
<b>Grade</b>	<b>100.00</b> out of 100.00

**Question 1**

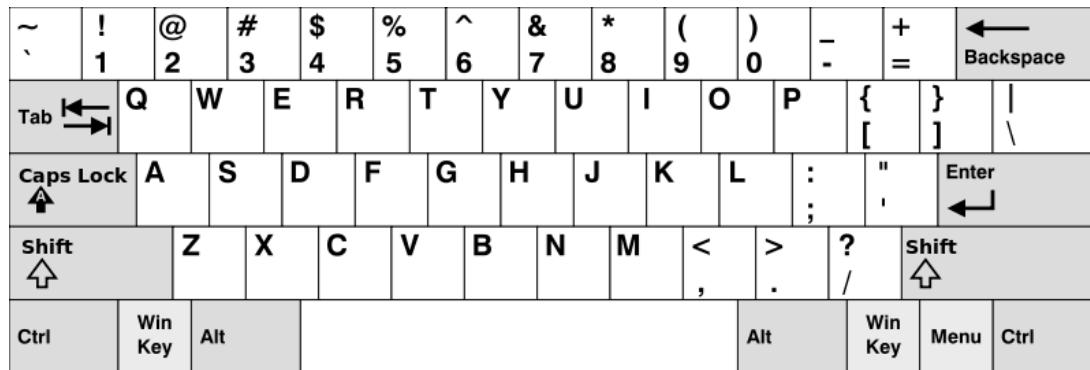
Correct

Mark 1.00 out of 1.00

Given an array of strings `words`, return the words that can be typed using letters of the alphabet on only one row of American keyboard like the image below.

In the **American keyboard**:

- the first row consists of the characters "qwertyuiop",
- the second row consists of the characters "asdfghjkl", and
- the third row consists of the characters "zxcvbnm".

**Example 1:**

**Input:** `words = ["Hello", "Alaska", "Dad", "Peace"]`  
**Output:** `["Alaska", "Dad"]`

**Example 2:**

**Input:** `words = ["omk"]`  
**Output:** `[]`

**Example 3:**

**Input:** `words = ["adsdf", "sfd"]`  
**Output:** `["adsdf", "sfd"]`

**For example:**

Input	Result
4	Alaska
Hello	Dad
Alaska	
Dad	
Peace	
2	adsdf
adsfd	afd
afd	

**Answer:** (penalty regime: 0 %)

```

1 n=int(input())
2 count=0
3 true=0
4 str1="QWERTYUIOPqwertyuiop"
5 str2="ASDFGHJKLasdfghjkl"
6 str3="ZXCVBNMzxcvbnm"
7 for i in range(n):
8     str4=input()
9     c,c1,c2=0,0,0
10    for i in str4:
11        if i in str1:
12            c+=1
13    if c==n:
14        count+=1
15 print(count)

```

```
13 v         elif i in str2:
14             c1+=1
15 v         elif i in str3:
16             c2+=1
17 v     if c==len(str4) or c1==len(str4) or c2==len(str4):
18         true=1
19         print(str4)
20 v if true!=1:
21     print("No words")
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	4 Hello Alaska Dad Peace	Alaska Dad	Alaska Dad	✓
✓	1 omk	No words	No words	✓
✓	2 adsfd afd	adsfd afd	adsfd afd	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 2**

Correct

Mark 1.00 out of 1.00

Given an array of integers `nums` containing  $n + 1$  integers where each integer is in the range  $[1, n]$  inclusive. There is only **one repeated number** in `nums`, return *this repeated number*. Solve the problem using set.

**Example 1:****Input:** `nums = [1,3,4,2,2]`**Output:** 2**Example 2:****Input:** `nums = [3,1,3,4,2]`**Output:** 3**For example:**

Input	Result
1 3 4 4 2	4

**Answer:** (penalty regime: 0 %)

```

1 def find_duplicate(nums):
2     seen = set()
3     for num in nums:
4         if num in seen:
5             return num
6         seen.add(num)
7
8 # Example usage
9 def process_input():
10    nums = list(map(int, input().split()))
11    print(find_duplicate(nums))
12
13 # Example usage
14 process_input()

```

	Input	Expected	Got	
✓	1 3 4 4 2	4	4	✓
✓	1 2 2 3 4 5 6 7	2	2	✓

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00.

**Question 3**

Correct

Mark 1.00 out of 1.00

Coders here is a simple task for you, Given string str. Your task is to check whether it is a binary string or not by using python [set](#).

Examples:

Input: str = "01010101010"

Output: Yes

Input: str = "REC101"

Output: No

**For example:**

Input	Result
01010101010	Yes
010101 10101	No

**Answer:** (penalty regime: 0 %)

```

1 a=input()
2 n=len(a)
3 c=0
4 for i in range(0,n):
5     if(a[i]!='0' and a[i]!='1'):
6         c=c+1
7 if (c==0):
8     print("Yes")
9 else:
10    print("No")

```

	Input	Expected	Got	
✓	01010101010	Yes	Yes	✓
✓	REC123	No	No	✓
✓	010101 10101	No	No	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 4**

Correct

Mark 1.00 out of 1.00

Write a program to eliminate the common elements in the given 2 arrays and print only the non-repeating elements and the total number of such non-repeating elements.

**Input Format:**

The first line contains space-separated values, denoting the size of the two arrays in integer format respectively.

The next two lines contain the space-separated integer arrays to be compared.

Sample Input:

```
5 4
1 2 8 6 5
2 6 8 10
```

Sample Output:

```
1 5 10
3
```

Sample Input:

```
5 5
1 2 3 4 5
1 2 3 4 5
```

Sample Output:

NO SUCH ELEMENTS

**For example:**

Input	Result
5 4 1 2 8 6 5	1 5 10 3
2 6 8 10	
5 5 1 2 3 4 5 1 2 3 4 5	NO SUCH ELEMENTS

**Answer:** (penalty regime: 0 %)

```
1 def non_repeating_elements(arr1, arr2):
2     set1 = set(arr1)
3     set2 = set(arr2)
4     non_common_elements = set1.symmetric_difference(set2)
5     return non_common_elements
6
7 def print_output(non_common_elements):
8     if non_common_elements:
9         print(*non_common_elements)
10        print(len(non_common_elements))
11    else:
12        print("NO SUCH ELEMENTS")
13
14 # Example usage
15 def process_input():
16     n, m = map(int, input().split())
17     arr1 = list(map(int, input().split()))
18     arr2 = list(map(int, input().split()))
19     non_common_elements = non_repeating_elements(arr1, arr2)
20     print_output(non_common_elements)
21
22 # Example usage
23 process_input()
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	5 4 1 2 8 6 5 2 6 8 10	1 5 10 3	1 5 10 3	✓
✓	3 3 10 10 10 10 11 12	11 12 2	11 12 2	✓
✓	5 5 1 2 3 4 5 1 2 3 4 5	NO SUCH ELEMENTS	NO SUCH ELEMENTS	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

## Question 5

Correct

Mark 1.00 out of 1.00

The **DNA sequence** is composed of a series of nucleotides abbreviated as 'A', 'C', 'G', and 'T'.

- For example, "ACGAATTCCG" is a **DNA sequence**.

When studying **DNA**, it is useful to identify repeated sequences within the DNA.

Given a string **s** that represents a **DNA sequence**, return all the **10-letter-long** sequences (substrings) that occur more than once in a DNA molecule. You may return the answer in **any order**.

**Example 1:**

**Input:** s = "AAAAACCCCCAAAAACCCCCAAAAAGGGTTT"

**Output:** ["AAAAACCCCC", "CCCCCAAAAA"]

**Example 2:**

**Input:** s = "AAAAAAAAAAAAAA"

**Output:** ["AAAAAAAAAA"]

**For example:**

Input	Result
AAAAACCCCCAAAAACCCCCAAAAAGGGTTT	AAAAACCCCC CCCCCAAAAA

**Answer:** (penalty regime: 0 %)

```

1 | s=input().strip()
2 | sl=10
3 | se=set()
4 | ds=set()
5 | for i in range(len(s)-sl+1):
6 |     cs=s[i:i+sl]
7 |     if cs in se:
8 |         ds.add(cs)
9 |     else:
10 |         se.add(cs)
11 | result = list(ds)
12 | for seq in result:
13 |     print(seq)

```

	Input	Expected	Got	
✓	AAAAACCCCCAAAAACCCCCAAAAAGGGTTT	AAAAACCCCC CCCCCAAAAA	AAAAACCCCC CCCCCAAAAA	✓
✓	AAAAAAAAAAAAAA	AAAAAAAAAA	AAAAAAAAAA	✓

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00

[◀ Week7\\_MCQ](#)

Jump to...

[Dictionary ►](#)

[Dashboard](#) / [My courses](#) / [PSPP/PUP](#) / [Experiments based on Dictionary and its operations.](#) / [Week8 Coding](#)

<b>Started on</b>	Wednesday, 29 May 2024, 8:54 PM
<b>State</b>	Finished
<b>Completed on</b>	Wednesday, 29 May 2024, 9:00 PM
<b>Time taken</b>	6 mins 21 secs
<b>Marks</b>	5.00/5.00
<b>Grade</b>	<b>100.00</b> out of 100.00

**Question 1**

Correct

Mark 1.00 out of 1.00

Give a [dictionary](#), with value lists, sort the keys by summation of values in value [list](#).

**Input :** test\_dict = {'Gfg' : [6, 7, 4], 'best' : [7, 6, 5]}

**Output :** {'Gfg': 17, 'best': 18}

**Explanation :** Sorted by sum, and replaced.

**Input :** test\_dict = {'Gfg' : [8,8], 'best' : [5,5]}

**Output :** {'best': 10, 'Gfg': 16}

**Explanation :** Sorted by sum, and replaced.

Sample Input:

2

Gfg 6 7 4

Best 7 6 5

Sample Output

Gfg 17

Best 18

**For example:**

Input	Result
2	
Gfg 6 7 4	Gfg 17
Best 7 6 5	Best 18

**Answer:** (penalty regime: 0 %)

```

1 n = int(input())
2 test_dict = {}
3
4 # Read input and populate the dictionary
5 for _ in range(n):
6     key, *values = input().split()
7     test_dict[key] = list(map(int, values))
8
9 # Calculate the sum of values for each key and sort the dictionary by sum
10 sorted_dict = {key: sum(values) for key, values in sorted(test_dict.items(), key=lambda item: sum(item[1]))}
11
12 for key, value in sorted_dict.items():
13     print(key, value)
14

```

	Input	Expected	Got	
✓	2 Gfg 6 7 4 Best 7 6 5	Gfg 17 Best 18	Gfg 17 Best 18	✓

	Input	Expected	Got	
✓	2 Gfg 6 6 Best 5 5	Best 10 Gfg 12	Best 10 Gfg 12	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 2**

Correct

Mark 1.00 out of 1.00

Create a student [dictionary](#) for n students with the student name as key and their test mark assignment mark and lab mark as values. Do the following computations and display the result.

- 1.Identify the student with the highest average score
- 2.Identify the student who has the highest Assignment marks
- 3.Identify the student with the Lowest lab marks
- 4.Identify the student with the lowest average score

Note:

If more than one student has the same score display all the student names

Sample input:

```
4
James 67 89 56
Lalith 89 45 45
Ram 89 89 89
Sita 70 70 70
```

Sample Output:

```
Ram
James Ram
Lalith
Lalith
```

**For example:**

Input	Result
4	Ram
James 67 89 56	James Ram
Lalith 89 45 45	Lalith
Ram 89 89 89	Lalith
Sita 70 70 70	

**Answer:** (penalty regime: 0 %)

```
1 def average(scores):
2     return sum(scores)/len(scores)
3 n=int(input())
4 students={}
5 for _ in range(n):
6     name,test,assignment,lab=input().split()
7     students[name]=[int(test),int(assignment),int(lab)]
8 averages = {name: average(scores) for name, scores in students.items()}
9 highest_avg = max(averages.values())
10 highest_avg_students = [name for name, avg in averages.items() if avg == highest_avg]
11 highest_assignment=max(student[1] for student in students.values())
12 highest_assignment_students = [name for name, scores in students.items()if scores[1] == highest_assignment]
13 lowest_lab=min(student[2] for student in students.values())
14 lowest_lab_students = [name for name,scores in students.items()if scores[2] ==lowest_lab]
15 lowest_avg=min(averages.values())
16 lowest_avg_students = [name for name, avg in averages.items() if avg == lowest_avg]
17 print("\n".join([
18     ".join(sorted(highest_avg_students)),
19     ".join(sorted(highest_assignment_students)),
```

```
20     " ".join(sorted(lowest_lab_students)),  
21     " ".join(sorted(lowest_avg_students))  
22 ]))
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	4 James 67 89 56 Lalith 89 45 45 Ram 89 89 89 Sita 70 70 70	Ram James Ram Lalith Lalith Lalith	Ram James Ram Lalith Lalith Lalith	✓
✓	3 Raja 95 67 90 Aarav 89 90 90 Shadhana 95 95 91	Shadhana Shadhana Aarav Raja Raja	Shadhana Shadhana Aarav Raja Raja	✓

Passed all tests! ✓



Correct

Marks for this submission: 1.00/1.00.

**Question 3**

Correct

Mark 1.00 out of 1.00

In the game of Scrabble™, each letter has points associated with it. The total score of a word is the sum of the scores of its letters. More common letters are worth fewer points while less common letters are worth more points. The points associated with each letter are shown below:

## Points Letters

1 A, E, I, L, N, O, R, S, T and U

2 D and G

3 B, C, M and P

4 F, H, V, W and Y

5 K

8 J and X

10 Q and Z

Write a program that computes and displays the Scrabble™ score for a word. Create a [dictionary](#) that maps from letters to point values. Then use the [dictionary](#) to compute the score.

A Scrabble™ board includes some squares that multiply the value of a letter or the value of an entire word. We will ignore these squares in this exercise.

[Sample](#) Input

REC

[Sample](#) Output

REC is worth 5 points.

**For example:**

Input	Result
REC	REC is worth 5 points.

**Answer:** (penalty regime: 0 %)

```

1 def scrabble_score(word):
2     letter_points = {
3         'A': 1, 'E': 1, 'I': 1, 'L': 1, 'N': 1, 'O': 1, 'R': 1, 'S': 1, 'T': 1, 'U': 1,
4         'D': 2, 'G': 2,
5         'B': 3, 'C': 3, 'M': 3, 'P': 3,
6         'F': 4, 'H': 4, 'V': 4, 'W': 4, 'Y': 4,
7         'K': 5,
8         'J': 8, 'X': 8,
9         'Q': 10, 'Z': 10
10    }
11
12    score = sum(letter_points.get(letter.upper(), 0) for letter in word)
13
14    return score
15
16 word = input()
17 score = scrabble_score(word)
18 print(f"{word} is worth {score} points.")
19

```

	Input	Expected	Got	
✓	GOD	GOD is worth 5 points.	GOD is worth 5 points.	✓

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	REC	REC is worth 5 points.	REC is worth 5 points.	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 4**

Correct

Mark 1.00 out of 1.00

A sentence is a string of single-space separated words where each word consists only of lowercase letters. A word is uncommon if it appears exactly once in one of the sentences, and does not appear in the other sentence.

Given two sentences s1 and s2, return a [list](#) of all the uncommon words. You may return the answer in any order.

Example 1:

Input: s1 = "this apple is sweet", s2 = "this apple is sour"

Output: ["sweet", "sour"]

Example 2:

Input: s1 = "apple apple", s2 = "banana"

Output: ["banana"]

Constraints:

$1 \leq s1.length, s2.length \leq 200$

s1 and s2 consist of lowercase English letters and spaces.

s1 and s2 do not have leading or trailing spaces.

All the words in s1 and s2 are separated by a single space.

Note:

Use [dictionary](#) to solve the problem

**For example:**

Input	Result
this apple is sweet	sweet sour
this apple is sour	

**Answer:** (penalty regime: 0 %)

```

1 def uncommon_words(s1, s2):
2     # Function to count word occurrences in a sentence
3     def count_words(sentence):
4         word_count = {}
5         words = sentence.split()
6         for word in words:
7             word_count[word] = word_count.get(word, 0) + 1
8         return word_count
9
10    # Count word occurrences in both sentences
11    count_s1 = count_words(s1)
12    count_s2 = count_words(s2)
13    uncommon_words = []
14    for word, count in count_s1.items():
15        if count == 1 and word not in count_s2:
16            uncommon_words.append(word)
17    for word, count in count_s2.items():
18        if count == 1 and word not in count_s1:
19            uncommon_words.append(word)
20
21    return uncommon_words
22 def main():
23     s1=input().strip()
24     s2=input().strip()
25     result=uncommon_words(s1,s2)
26     print(" ".join(result))
27 if __name__ == "__main__":
28     main()

```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	this apple is sweet this apple is sour	sweet sour	sweet sour	✓
✓	apple apple banana	banana	banana	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 5**

Correct

Mark 1.00 out of 1.00

Given an array of names of candidates in an election. A candidate name in the array represents a vote cast to the candidate. Print the name of candidates received Max vote. If there is tie, print a lexicographically smaller name.

**Examples:**

```
Input : votes[] = {"john", "johnny", "jackie",
                  "johnny", "john", "jackie",
                  "jamie", "jamie", "john",
                  "johnny", "jamie", "johnny",
                  "john"};
```

Output : John

We have four Candidates with name as 'John', 'Johnny', 'jamie', 'jackie'. The candidates John and Johny get maximum votes. Since John is alphabetically smaller, we print it. Use [dictionary](#) to solve the above problem

**Sample Input:**

```
10
John
John
Johny
Jamie
Jamie
Johny
Jack
Johny
Johny
Jackie
```

**Sample Output:**

Johny


**Answer:** (penalty regime: 0 %)

```
1 def find_winner(votes):
2     # Create a dictionary to store the count of each candidate's votes
3     vote_count = {}
4
5     # Count the votes for each candidate
6     for candidate in votes:
7         vote_count[candidate]=vote_count.get(candidate,0)+1
8     max_votes = max(vote_count.values())
9     winners=[candidate for candidate,votes in vote_count.items() if votes==max_votes]
```

```

10     return min(winners)
11 def main():
12     n=int(input())
13     votes=[input().strip() for _ in range(n)]
14     winner=find_winner(votes)
15     print(winner)
16 main()

```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	10 John John Johny Jamie Jamie Johny Jack Johny Johny Jackie	Johny	Johny	✓
✓	6 Ida Ida Ida Kiruba Kiruba Kiruba	Ida	Ida	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ Week8\_MCQ

Jump to...

Functions ►

[Dashboard](#) / [My courses](#) / [PSPP/PUP](#) / [Functions: Built-in functions, User-defined functions, Recursive functions](#) / [Week9 Coding](#)

<b>Started on</b>	Wednesday, 29 May 2024, 5:48 PM
<b>State</b>	Finished
<b>Completed on</b>	Wednesday, 29 May 2024, 6:51 PM
<b>Time taken</b>	1 hour 2 mins
<b>Marks</b>	5.00/5.00
<b>Grade</b>	<b>100.00</b> out of 100.00

**Question 1**

Correct

Mark 1.00 out of 1.00

An e-commerce company plans to give their customers a special discount for Christmas.

They are planning to offer a flat discount. The discount value is calculated as the sum of all the prime digits in the total bill amount.

Write an algorithm to find the discount value for the given total bill amount.

Constraints

$1 \leq \text{orderValue} < 10e100000$

Input

The input consists of an integer `orderValue`, representing the total bill amount.

Output

Print an integer representing the discount value for the given total bill amount.

Example Input

578

Output

12

**For example:**

Test	Result
<code>print(christmasDiscount(578))</code>	12

**Answer:** (penalty regime: 0 %)

[Reset answer](#)

```

1 def is_prime(n):
2     if n<=1:
3         return False
4     if n<=3:
5         return True
6     if n%2 == 0 or n%3 == 0:
7         return False
8     i=5
9     while i*i<=n:
10        if n%i==0 or n%(i+2)==0:
11            return False
12        i+=6
13    return True
14 def christmasDiscount(orderValue):
15     discount=0
16     for digit in str(orderValue):
17         if is_prime(int(digit)):
18             discount+=int(digit)
19     return discount
20 try:
21     orderValue=int(input())
22     print(christmasDiscount(orderValue),end="")
23 except EOFError:
24     print(end="")
25 except ValueError:
26     print(end="")
27

```

	Test	Expected	Got	
✓	<code>print(christmasDiscount(578))</code>	12	12	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 2**

Correct

Mark 1.00 out of 1.00

complete function to implement coin change making problem i.e. finding the minimum number of coins of certain denominations that add up to given amount of money.

The only available coins are of values 1, 2, 3, 4

**Input Format:**

Integer input from stdin.

**Output Format:**

return the minimum number of coins required to meet the given target.

**Example Input:**

16

**Output:**

4

**Explanation:**

We need only 4 coins of value 4 each

**Example Input:**

25

**Output:**

7

**Explanation:**

We need 6 coins of 4 value, and 1 coin of 1 value

**Answer:** (penalty regime: 0 %)

[Reset answer](#)

```

1 def coinChange(n):
2     l=[4,3,2,1]
3     j=0
4     for i in l:
5         j+=n//i
6     if n%i==n:
7         continue
8     n%=i
9     if n==0:
10        break
11 return j

```

	Test	Expected	Got	
✓	print(coinChange(16))	4	4	✓

Passed all tests! ✓

[Correct](#)

Marks for this submission: 1.00/1.00.

**Question 3**

Correct

Mark 1.00 out of 1.00

An automorphic number is a number whose square ends with the number itself.

For example, 5 is an automorphic number because  $5 \times 5 = 25$ . The last digit is 5 which same as the given number.

If the number is not valid, it should display "Invalid input".

If it is an automorphic number display "Automorphic" else display "Not Automorphic".

**Input Format:**

Take a Integer from Stdin Output Format: Print Automorphic if given number is Automorphic number,otherwise Not Automorphic Example input: 5 Output: Automorphic Example input: 25 Output: Automorphic Example input: 7 Output: Not Automorphic

**For example:**

Test	Result
print(automorphic(5))	Automorphic

**Answer:** (penalty regime: 0 %)

[Reset answer](#)

```

1 def automorphic(n):
2     N=n**2
3     I=str(N)
4     if I[-1]==str(n):
5         return 'Automorphic'
6     return 'Not Automorphic'
7

```

	Test	Expected	Got	
✓	print(automorphic(5))	Automorphic	Automorphic	✓
✓	print(automorphic(7))	Not Automorphic	Not Automorphic	✓

Passed all tests! ✓

[Correct](#)

Marks for this submission: 1.00/1.00.

**Question 4**

Correct

Mark 1.00 out of 1.00

A number is considered to be ugly if its only prime factors are 2, 3 or 5.

[1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 15, ...] is the sequence of ugly numbers.

Task:

complete the function which takes a number n as input and checks if it's an ugly number.

return ugly if it is ugly, else return not ugly

Hint:

An ugly number U can be expressed as:  $U = 2^a * 3^b * 5^c$ , where a, b and c are nonnegative integers.

**For example:**

Test	Result
print(checkUgly(6))	ugly
print(checkUgly(21))	not ugly

**Answer:** (penalty regime: 0 %)

[Reset answer](#)

```

1 def checkUgly(n):
2     if n<=0:
3         return "not ugly"
4     while n%2==0:
5         n/=2
6     while n%3==0:
7         n/=3
8     while n%5==0:
9         n/=5
10    if n==1:
11        return "ugly"
12    else:
13        return "not ugly"
14 try:
15     n=int(input())
16     print(checkUgly(n),end="")
17 except EOFError:
18     print(end="")

```

	Test	Expected	Got	
✓	print(checkUgly(6))	ugly	ugly	✓
✓	print(checkUgly(21))	not ugly	not ugly	✓

Passed all tests! ✓

[Correct](#)

Marks for this submission: 1.00/1.00.

**Question 5**

Correct

Mark 1.00 out of 1.00

Write a code to check whether product of digits at even places is divisible by sum of digits

at odd place of a positive integer.

**Input Format:**

Take an input integer from stdin.

**Output Format:**

Print TRUE or FALSE.

**Example Input:**

1256

**Output:**

TRUE

**Example Input:**

1595

**Output:**

FALSE

**For example:**

Test	Result
print(productDigits(1256))	True
print(productDigits(1595))	False

**Answer:** (penalty regime: 0 %)

[Reset answer](#)

```

1 def productDigits(num):
2     if num <= 0:
3         return "FALSE"
4
5     num_str = str(num)
6     even_product = 1
7     odd_sum = 0
8
9     for i in range(len(num_str)):
10        digit = int(num_str[i])
11        if (i + 1) % 2 == 0:
12            even_product *= digit
13        else:
14            odd_sum += digit
15
16    return "True" if even_product % odd_sum == 0 else "False"
17
18

```

	Test	Expected	Got	
✓	print(productDigits(1256))	True	True	✓
✓	print(productDigits(1595))	False	False	✓

Passed all tests! ✓

[Correct](#)

Marks for this submission: 1.00/1.00.

[◀ Week9\\_MCQ](#)

Jump to...

Searching ►

[Dashboard](#) / [My courses](#) / [PSPP/PUP](#) / [Searching techniques: Linear and Binary](#) / [Week10 Coding](#)

<b>Started on</b>	Wednesday, 29 May 2024, 6:52 PM
<b>State</b>	Finished
<b>Completed on</b>	Wednesday, 29 May 2024, 8:50 PM
<b>Time taken</b>	1 hour 57 mins
<b>Marks</b>	5.00/5.00
<b>Grade</b>	<b>100.00</b> out of 100.00

**Question 1**

Correct

Mark 1.00 out of 1.00

To find the frequency of numbers in a [list](#) and display in sorted order.

**Constraints:**

1 &lt;= n, arr[i] &lt;= 100

**Input:**

1 68 79 4 90 68 1 4 5

**Output:**

1 2

4 2

5 1

68 2

79 1

90 1

**For example:**

Input	Result
4 3 5 3 4 5	3 2 4 2 5 2

**Answer:** (penalty regime: 0 %)

```

1 def frequency_sorted(nums):
2     freq = {}
3     for num in nums:
4         freq[num] = freq.get(num, 0) + 1
5
6     sorted_freq = sorted(freq.items())
7     for key, value in sorted_freq:
8         print(key, value)
9
10    nums = list(map(int, input().split()))
11    frequency_sorted(nums)

```

	Input	Expected	Got	
✓	4 3 5 3 4 5	3 2 4 2 5 2	3 2 4 2 5 2	✓
✓	12 4 4 4 2 3 5	2 1 3 1 4 3 5 1 12 1	2 1 3 1 4 3 5 1 12 1	✓

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	5 4 5 4 6 5 7 3	3 1 4 2 5 3 6 1 7 1	3 1 4 2 5 3 6 1 7 1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 2**

Correct

Mark 1.00 out of 1.00

Write a Python program for binary search.

**For example:**

Input	Result
1,2,3,5,8 6	False
3,5,9,45,42 42	True

**Answer:** (penalty regime: 0 %)

```

1 def binary_search(arr, target):
2     left, right = 0, len(arr) - 1
3
4     while left <= right:
5         mid = left + (right - left) // 2
6         if arr[mid] == target:
7             return True
8         elif arr[mid] < target:
9             left = mid + 1
10        else:
11            right = mid - 1
12
13    return False
14
15 input_list = sorted([int(x) for x in input().split(",")])
16 target_value = int(input())
17
18 result = binary_search(input_list, target_value)
19 print(result)

```

	Input	Expected	Got	
✓	1,2,3,5,8 6	False	False	✓
✓	3,5,9,45,42 42	True	True	✓
✓	52,45,89,43,11 11	True	True	✓

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00.

**Question 3**

Correct

Mark 1.00 out of 1.00

Given an listof integers, sort the array in ascending order using the *Bubble Sort* algorithm above. Once sorted, print the following three lines:

1. List is sorted in numSwaps swaps., where numSwaps is the number of swaps that took place.
2. First Element: firstElement, the *first* element in the sorted List.
3. Last Element: lastElement, the *last* element in the sorted List.

For example, given a worst-case but small array to sort: a=[6,4,1]. It took 3 swaps to sort the array. Output would be

Array is sorted in 3 swaps.

First Element: 1

Last Element: 6

**Input Format**

The first line contains an integer,n , the size of the List a .

The second line contains n, space-separated integers a[i].

**Constraints**

- $2 \leq n \leq 600$
- $1 \leq a[i] \leq 2 \times 10^6$ .

**Output Format**

You must print the following three lines of output:

1. List is sorted in numSwaps swaps., where numSwaps is the number of swaps that took place.
2. First Element: firstElement, the *first* element in the sorted List.
3. Last Element: lastElement, the *last* element in the sorted List.

**Sample Input 0**

3

1 2 3

**Sample Output 0**List is sorted in 0 swaps.

First Element: 1

Last Element: 3

**For example:**

Input	Result
3	List is sorted in 0 swaps.
3 2 1	First Element: 1 Last Element: 3
5	List is sorted in 4 swaps.
1 9 2 8 4	First Element: 1 Last Element: 9

**Answer:** (penalty regime: 0 %)

```

1 def bubble_sort(arr):
2     n = len(arr)
3     swaps = 0
4     for i in range(n):
5         for j in range(0, n-i-1):
6             if arr[j] > arr[j+1]:
7                 arr[j], arr[j+1] = arr[j+1], arr[j]
8                 swaps += 1
9     return swaps
10 n = int(input())
11 arr = list(map(int, input().split()))

```

```
12 num_swaps = bubble_sort(arr)
13 print(f"List is sorted in {num_swaps} swaps.")
14 print(f"First Element: {arr[0]}")
15 print(f"Last Element: {arr[-1]})")
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	3 3 2 1	List is sorted in 3 swaps. First Element: 1 Last Element: 3	List is sorted in 3 swaps. First Element: 1 Last Element: 3	✓
✓	5 1 9 2 8 4	List is sorted in 4 swaps. First Element: 1 Last Element: 9	List is sorted in 4 swaps. First Element: 1 Last Element: 9	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

**Question 4**

Correct

Mark 1.00 out of 1.00

Given an list, find peak element in it. A peak element is an element that is greater than its neighbors.

An element  $a[i]$  is a peak element if

$A[i-1] \leq A[i] \geq A[i+1]$  for middle elements.  $[0 < i < n-1]$

$A[i-1] \leq A[i]$  for last element  $[i=n-1]$

$A[i] \geq A[i+1]$  for first element  $[i=0]$

**Input Format**

The first line contains a single integer  $n$ , the length of  $A$ .

The second line contains  $n$  space-separated integers,  $A[i]$ .

**Output Format**

**Print** peak numbers separated by space.

**Sample Input**

5

8 9 10 2 6

**Sample Output**

10 6

**For example:**

Input	Result
4	12 8
12 3 6 8	

**Answer:** (penalty regime: 0 %)

```

1 def find_peak(nums):
2     peaks = []
3     n = len(nums)
4
5     if n == 1:
6         return nums[0]
7
8     for i in range(n):
9         if i == 0 and nums[i] >= nums[i + 1]:
10            peaks.append(nums[i])
11        elif i == n - 1 and nums[i] >= nums[i - 1]:
12            peaks.append(nums[i])
13        elif nums[i] >= nums[i - 1] and nums[i] >= nums[i + 1]:
14            peaks.append(nums[i])
15
16    return peaks
17
18 n = int(input())
19 nums = list(map(int, input().split()))
20
21 print(*find_peak(nums))
22

```

	Input	Expected	Got	
✓	7 15 7 10 8 9 4 6	15 10 9 6	15 10 9 6 ✓	
✓	4 12 3 6 8	12 8	12 8 ✓	

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

## Question 5

Correct

Mark 1.00 out of 1.00

Write a Python program to sort a list of elements using the merge sort algorithm.

**For example:**

Input	Result
5	3 4 5 6 8
6 5 4 3 8	

**Answer:** (penalty regime: 0 %)

```

1 def merge_sort(arr):
2     if len(arr) > 1:
3         mid = len(arr) // 2
4         left_half = arr[:mid]
5         right_half = arr[mid:]
6
7         merge_sort(left_half)
8         merge_sort(right_half)
9
10        i = j = k = 0
11
12        # Merge the two sorted halves
13        while i < len(left_half) and j < len(right_half):
14            if left_half[i] < right_half[j]:
15                arr[k] = left_half[i]
16                i += 1
17            else:
18                arr[k] = right_half[j]
19                j += 1
20            k += 1
21
22        # Copy remaining elements of left_half
23        while i < len(left_half):
24            arr[k] = left_half[i]
25            i += 1
26            k += 1
27
28        # Copy remaining elements of right_half
29        while j < len(right_half):
30            arr[k] = right_half[j]
31            j += 1
32            k += 1
33
34 def print_list(arr):
35     for num in arr:
36         print(num, end=' ')
37     print()
38
39 n = int(input())
40 arr = list(map(int, input().split()))
41
42 merge_sort(arr)
43
44 print_list(arr)
45

```

	Input	Expected	Got	
✓	5 6 5 4 3 8	3 4 5 6 8	3 4 5 6 8	✓
✓	9 14 46 43 27 57 41 45 21 70	14 21 27 41 43 45 46 57 70	14 21 27 41 43 45 46 57 70	✓
✓	4 86 43 23 49	23 43 49 86	23 43 49 86	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ Week10\\_MCQ](#)

Jump to...

[Sorting ►](#)