Started on	Saturday, 1 June 2024, 3:03 PM
State	Finished
Completed on	Saturday, 1 June 2024, 3:51 PM
Time taken	48 mins 9 secs
Marks	5.00/5.00
Grade	**100.00** out of 100.00

Question **1**

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*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

```
def automorphic(num):
    # Check if the number is valid (positive)
    if num <= 0:
        return "Invalid input"

    # Square the number
    square = num * num

    # Extract the last digits of the squared number
    squared_str = str(square)
    num_str = str(num)
    last_digits = squared_str[-len(num_str):]

    # Check if the last digits match the original number
    if last_digits == num_str:
        return "Automorphic"
    else:
        return "Not Automorphic"
```

	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 **2**

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

```
def checkUgly(n):
    if n <= 0:
        return "not ugly"
    while n % 2 == 0:
        n //= 2
    while n % 3 == 0:
        n //= 3
    while n % 5 == 0:
        n //= 5
    return "ugly" if n == 1 else "not ugly"
```

	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 **3**

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

```
def coinChange(amount):
    # Initialize the dp array where dp[i] will store the minimum number of coins for amount i
    dp = [float('inf')] * (amount + 1)

    # Base case: 0 coins are needed to make the amount 0
    dp[0] = 0

    # List of available coin denominations
    coins = [1, 2, 3, 4]

    # Build the dp array
    for i in range(1, amount + 1):
        for coin in coins:
            if i - coin >= 0:
                dp[i] = min(dp[i], dp[i - coin] + 1)

    # The answer is in dp[amount]
    return dp[amount]
```

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

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

Question **4**

Correct

Mark 1.00 out of 1.00

An abundant number is a number for which the sum of its proper divisors is greater than

the number itself. Proper divisors of the number are those that are strictly lesser than the number.

Input Format:

Take input an integer from stdin

Output Format:

Return Yes if given number is Abundant. Otherwise, print No

Example input:

12

Output:

Yes

Explanation

The proper divisors of 12 are: 1, 2, 3, 4, 6, whose sum is 1 + 2 + 3 + 4 + 6 = 16. Since sum of

proper divisors is greater than the given number, 12 is an abundant number.

Example input:

13

Output:

No

Explanation

The proper divisors of 13 is: 1, whose sum is 1. Since sum of proper divisors is not greater

than the given number, 13 is not an abundant number.

For example:

Test	Result
`print(abundant(12))`	`Yes`
`print(abundant(13))`	`No`

Answer: (penalty regime: 0 %)

Reset answer

```
def abundant(n):
    A = sum(i for i in range(1, n) if n % i == 0)
    return "Yes" if A > n else "No"
```

	Test	Expected	Got	
✓	`print(abundant(12))`	`Yes`	`Yes`	✓
✓	`print(abundant(13))`	`No`	`No`	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

Question **5**

Correct

Mark 1.00 out of 1.00

Given a number with maximum of 100 digits as input, find the difference between the sum

of odd and even position digits.

Input Format:

Take a number in the form of String from stdin.

Output Format:

Print the difference between sum of even and odd digits

Example input:

1453

Output:

1

Explanation:

Here, sum of even digits is 4 + 3 = 7

sum of odd digits is 1 + 5 = 6.

Difference is 1.

Note that we are always taking absolute difference

Answer: (penalty regime: 0 %)

Reset answer

```
def differenceSum(num):
    num_str = str(num)  # Convert the integer to a string
    # Initialize sums for even and odd position digits
    even_sum = 0
    odd_sum = 0

    # Iterate through each digit in the number
    for i in range(len(num_str)):
        digit = int(num_str[i])

        # Check if the position is even or odd
        if (i + 1) % 2 == 0:
            even_sum += digit
        else:
            odd_sum += digit

    # Calculate the absolute difference between even and odd sums
```

	Test	Expected	Got	
✓	`print(differenceSum(1453))`	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◄ Week9_MCQ

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