CODING:WEEK-3-CODING Selection control

1.Write a Python program that accepts three parameters. The first parameter is an integer. The second is one of the following mathematical operators: +, -, /, or *. The third parameter will also be an integer.

The function should perform a calculation and return the results. For example, if the function is passed 6 and 4, it should return 24.

Sample Input Format:

11

+

14

Sample Output Format:

25

Coding:

```
n1=int(input())
op=input().strip()
n2=int(input())
if op == '+':
    res=n1+n2
elif op == '-':
    res=n1-n2
elif op == '*':
    res=n1*n2
elif op == '/':
    if n2 !=0:
        res=n1/n2
    else:
        res="Division by zero is not valid"
else:
```

```
    res="Invalid operator"

print(res)
```

Output:

	Input	Expected	Got	
✓	11 + 14	25	25	✓
✓	45 - 50	-5	-5	✓
✓	12 * 100	1200	1200	✓
✓	18 / 2	9.0	9.0	✓

Passed all tests! ✓

2. 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 it is an automorphic number display “Automorphic” else display “Not Automorphic”.

Input Format:

Take a Integer from Keyboard

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

Coding:

```
num=int(input())
sq=num**2
a=str(num)
b=str(sq)
if b.endswith(a):
    print("Automorphic")
else:
    print("Not Automorphic")
```

Output:

	Input	Expected	Got	
✓	5	Automorphic	Automorphic	✓
✓	625	Automorphic	Automorphic	✓
✓	7	Not Automorphic	Not Automorphic	✓

Passed all tests! ✓

3. 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

Coding:

```
a=float(input())
if a<= 199:
    b=a*1.20
elif 200 <= a <400:
    b=a*1.50
elif 400 <= a < 600:
    b=a*1.80
else:
    b=a*2.00

if b > 400:
    b+=b*0.15
if b< 100:
    b=100

print(f"{b:.2f}")
```

Output:

	Input	Expected	Got	
✓	50	100.00	100.00	✓
✓	100.00	120.00	120.00	✓
✓	500	1035.00	1035.00	✓
✓	700	1610.00	1610.00	✓

Passed all tests! ✓

4. 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.

Coding:

```
animals=["Dragon","Snake","Horse","Sheep","Monkey","Rooster","Dog","Pig","Rat","Ox","Tiger","Hare"]
year=int(input())
i=(year-2000)%12
animal=animals[i]
print(f"{year} is the year of the {animal}.")
```

Output:

	Input	Expected	Got	
✓	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! ✓

5. Find whether the given number is a Harshad number or not. Note that Harshard number is an integer that is divisible by the sum of its digits.

INPUT & OUTPUT FORMAT:

Input consists of 1 integer. If the given number is a Harshad Number, display "Harshad Number" or display "Not Harshad Number".

SAMPLE INPUT:

1729

SAMPLE OUTPUT:

Harshad Number

Explanation:1729 is divisible by 19(1+7+2+9), hence 1729 is a Harshad Number

Coding:

```
num=int(input())
s=str(num)
x=sum(int(digit) for digit in s)
if x==0:
    print("Not Harshad Number")
else:
    if num % x==0:
        print("Harshad Number")
```

```
else:
    print("Not Harshad Number")
```

Output:

	Input	Expected	Got	
✓	1729	Harshad Number	Harshad Number	✓
✓	64	Not Harshad Number	Not Harshad Number	✓

Passed all tests! ✓

6. Write a program that accepts 5 inputs and returns the count of how many of those 5 are odd.

For example,

If the five inputs are 12, 17, 19, 14, and 115, there are three odd numbers 17, 19 and 115. So, the program must return 3.

Similarly,

If the five inputs are 15, 0, -12, 19, and 28, there are two odd numbers 15 and 19. So, the program must return 2.

Observe that zero is considered an even number.

For example:

Input	Result
12 17 19 14 115	3
15 0 -12 19	2

Input	Result
28	

	Input	Expected	Got	
✓	12 17 19 14 115	3	3	✓
✓	15 0 -12 19 28	2	2	✓

Passed all tests! ✓

7. A certain type of steel is used to test and give grade according to the following conditions.

1. Hardness of the steel must be greater than 50
2. Carbon content of the steel must be less than 0.7
3. Tensile strength must be greater than 5600

The grades awarded are as follows:

- Grade is 10 if all three conditions are met
- Grade is 9 if conditions (1) and (2) are met
- Grade is 8 if conditions (2) and (3) are met
- Grade is 7 if conditions (1) and (3) are met
- Grade is 6 if only one condition is met
- Grade is 5 if none of the three conditions are met

Write a program to display the grade of the steel, based on the values of hardness, carbon content and tensile strength of the steel, given by the user.

Input

53

0.6

5602

Output:

10

Coding:

```
a=float(input())
b=float(input())
c=float(input())
g=5
c1=a > 50
c2=b < 0.7
c3=c > 5600
if c1 and c2 and c3:
    g=10
elif c1 and c2:
    g=9
elif c2 and c3:
    g=8
elif c1 and c3:
    g=7
elif c1 or c2 or c3:
    g=6

print(g)
```

Output:

	Input	Expected	Got	
✓	53 0.6 5602	10	10	✓
✓	45 0 4500	6	6	✓

Passed all tests! ✓

8. Write a program to find the sum of the series 1 +11 + 111 + 1111 + . . . + 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

Coding:

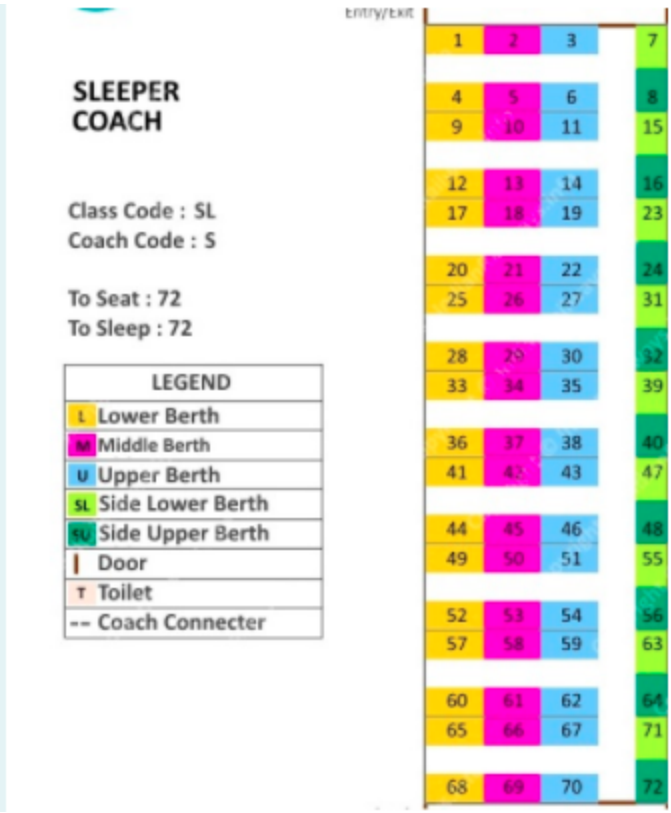
```
n=int(input())
a=0
b=1
for i in range(n):
    a+=b
    b=b*10+1
print(a)
```

Output:

	Input	Expected	Got	
✓	4	1234	1234	✓
✓	6	123456	123456	✓

Passed all tests! ✓

9. Write a program to determine the type of berth when the seat / berth number in the train is given.



Input Format:

Input consists of a single integer. Assume that the range of input is between 1 and 72.

Output Format:

Output consists of a single string. [Upper or Middle or Lower or Side Lower or Side Upper]

Sample Input 1:

9

Sample Output 1:

Lower Berth

Coding:

```
num=int(input())
if 1 <= num <=72:
    rem=num%8
    if rem==0:
        rem=8

    if rem in (1,2):
        res="Lower Berth"
    elif rem in (3,4):
        res="Middle Berth"
    elif rem in (5,6):
        res="Upper Berth"
    elif rem ==7:
        res="Side Lower Berth"
    elif rem==8:
        res= "Side Upper Berth"
    else:
        res="Invalid num"

    print(res)
```

Output:

	Input	Expected	Got	
✓	9	Lower Berth	Lower Berth	✓
✓	72	Side Upper Berth	Side Upper Berth	✓

Passed all tests! ✓

10. Given an integer N, check whether N the given number can be made a perfect square after adding 1 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

Coding:

```
import math
n=int(input())
m=n+1
r=int(math.isqrt(m))
if r*r==m:
    print("Yes")
else:
    print("No")
```

Output:

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

Passed all tests! ✓