

Assignment - Branching and Looping

- Conditional statements
- Loops
- Iterating items from iterable objects

1. Conditional Statements

Human Year to Dog Year

The age of a dog could be computed as follow:

- For the first two human years, dog year is 10.5 times of human year
- For additional human year, dog year is 4 times of human year.

Implement a function `human_year_to_dog()` which converts human years to dog years

- return `None` if input is a negative value

Write a script to:

- ask user to input a human year value;
- call the function to get the equivalent dog year;
- display to the result in 1 decimal points
- display **Error** if the value is `None`

Sample Output:

```
Human Year: 2
Dog Year: 21.0
Human Year: 1.513
Dog Year: 15.9
Human Year: -2
Error
```

```
In [15]: 1 def human_year_to_dog(human_year):
2         if human_year <= 2 and human_year >= 0:
3             return human_year * 10.5
4         elif human_year > 2:
5             return 2 * 10.5 + (human_year-2) * 4
6         else:
7             return None
8
9 hy = input('Human Year: ')
10 hy = float(hy)
11
12 dog_year = human_year_to_dog(hy)
13
14 if dog_year == None:
15     print('Error')
16 else:
17     print(f'Dog Year: {dog_year:.3f}')
```

Human Year: 1.513

Dog Year: 00015.886

2. while Loop

Even Numbers Only

Create a program which ask users to input even integers. Ignore the input if the number is not even. End the program after user entered 4 even numbers and display them.

Sample Output:

Enter 4 even integers:

10

4

5

6

8

[10, 4, 6, 8]

```
In [18]: ▶ 1 print('Enter 4 even integers:')
           2 result = []
           3
           4 while len(result) < 4:
           5     x = int(input())
           6     if x % 2 != 0:
           7         continue
           8     result.append(x)
           9
          10 print(result)
```

Enter 4 even integers:

2

3

4

5

6

7

8

[2, 4, 6, 8]

3. for Loop

Count Even and Odd Numbers

Following code generates a list of random integers between 1 and 10 (both ends inclusive).

```
import random
nums = [random.randint(1,10) for i in range(5)]
print(nums)
```

Write a program which

- generates 10 random integers between 1 and 100;
- counts number of even and odd numbers in the list;
- displays the result as show in Sample Output.

Sample Output:

Random Numbers: [18, 30, 26, 6, 83, 62, 18, 10, 32, 52]

Odd = 1, Even = 9

In [52]:



```
1 import random
2 random.seed(1)
3 nums = [random.randint(1,100) for i in range(10)]
4 print(nums)
5
6 odd = 0
7 even = 0
8
9 for x in nums:
10     if x % 2 == 0:
11         even = even + 1
12     else:
13         odd = odd + 1
14
15 print(f'Odd = {odd}, Even = {even}')
```

[18, 73, 98, 9, 33, 16, 64, 98, 58, 61]

Odd = 4, Even = 6