Python Village

February 24, 2023

0.1 Variables and Some Arithmetic

https://rosalind.info/problems/ini2/

Problem Given: Two positive integers a and b, each less than 1000.

Return: The integer corresponding to the square of the hypotenuse of the right triangle whose legs have lengths a and b.

```python
[4]: with open(input(), "r") as f:  # rosalind_ini2.txt
         a, b = list(map(int, f.read().strip().split()))

     total = a**2 + b**2
     print(total)
```

```
rosalind_ini2.txt
1733401
```

0.2 Strings and Lists

https://rosalind.info/problems/ini3/

Problem Given: A string s of length at most 200 letters and four integers a, b, c and d.

Return: The slice of this string from indices a through b and c through d (with space in between), inclusively. In other words, we should include elements s[b] and s[d] in our slice.

```python
[8]: #string =␣
     ↪"HumptyDumptysatonawallHumptyDumptyhadagreatfallAlltheKingshorsesandalltheKingsmenCouldntpu
     #a, b, c, d = 22, 27, 97, 102

     with open(input(), "r") as f:  # rosalind_ini3.txt
         string = f.readline().strip()
         a, b, c, d = list(map(int, f.readline().strip().split()))

     print(string[a:b+1], string[c:d+1])
```

```
rosalind_ini3.txt
Phormictopus atriceps
```

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0.3 Conditions and Loops

https://rosalind.info/problems/ini4/

Problem

Given: Two positive integers a and b (a<b<10000).

Return: The sum of all odd integers from a through b, inclusively.

```python
[10]: with open(input(), "r") as f:  # rosalind_ini4.txt
          a, b = list(map(int, f.read().strip().split()))

      total = sum([num for num in range(a, b+1) if num%2 != 0])
      print(total)
```

```
rosalind_ini4.txt
16831191
```

0.4 Working with Files

https://rosalind.info/problems/ini5/

Problem

Given: A file containing at most 1000 lines.

Return: A file containing all the even-numbered lines from the original file. Assume 1-based numbering of lines.

```python
[17]: with open(input(), "r") as f:  # rosalind_ini5.txt
          print("".join(f.readlines()[1::2]))
```

```
rosalind_ini5.txt
Some things in life are bad, they can really make you mad
Other things just make you swear and curse
When you're chewing on life's gristle, don't grumble give a whistle
This will help things turn out for the best
Always look on the bright side of life
Always look on the right side of life
If life seems jolly rotten, there's something you've forgotten
And that's to laugh and smile and dance and sing
When you're feeling in the dumps, don't be silly, chumps
Just purse your lips and whistle, that's the thing
So, always look on the bright side of death
Just before you draw your terminal breath
Life's a counterfeit and when you look at it
Life's a laugh and death's the joke, it's true
You see, it's all a show, keep them laughing as you go
Just remember the last laugh is on you
Always look on the bright side of life
And always look on the right side of life
```

```
Always look on the bright side of life
And always look on the right side of life
```

0.5 Dictionaries

https://rosalind.info/problems/ini6/

Problem

Given: A string s of length at most 10000 letters.

Return: The number of occurrences of each word in s, where words are separated by spaces. Words are case-sensitive, and the lines in the output can be in any order.

```python
[18]: with open(input(), "r") as f:  # rosalind_ini6.txt
          words = f.read().strip().split()

      count_dict = {}
      for word in words:
          count_dict[word] = count_dict.get(word, 0) + 1

      for word, count in count_dict.items():
          print(word, count)
```

```
rosalind_ini6.txt
When 1
I 2
find 1
myself 1
in 4
times 1
of 11
trouble 1
Mother 2
Mary 2
comes 2
to 3
me 4
Speaking 3
words 7
wisdom 7
let 30
it 36
be 41
And 3
my 1
hour 1
darkness 1
she 1
```

```
is 4
standing 1
right 1
front 1
Let 6
Whisper 4
when 2
the 4
broken 1
hearted 1
people 1
living 1
world 1
agree 1
There 4
will 5
an 4
answer 4
For 1
though 1
they 2
may 1
parted 1
there 2
still 2
a 2
chance 1
that 2
see 1
night 1
cloudy 1
light 1
shines 1
on 1
Shine 1
until 1
tomorrow 1
wake 1
up 1
sound 1
music 1
yeah 2
```

[ ]: