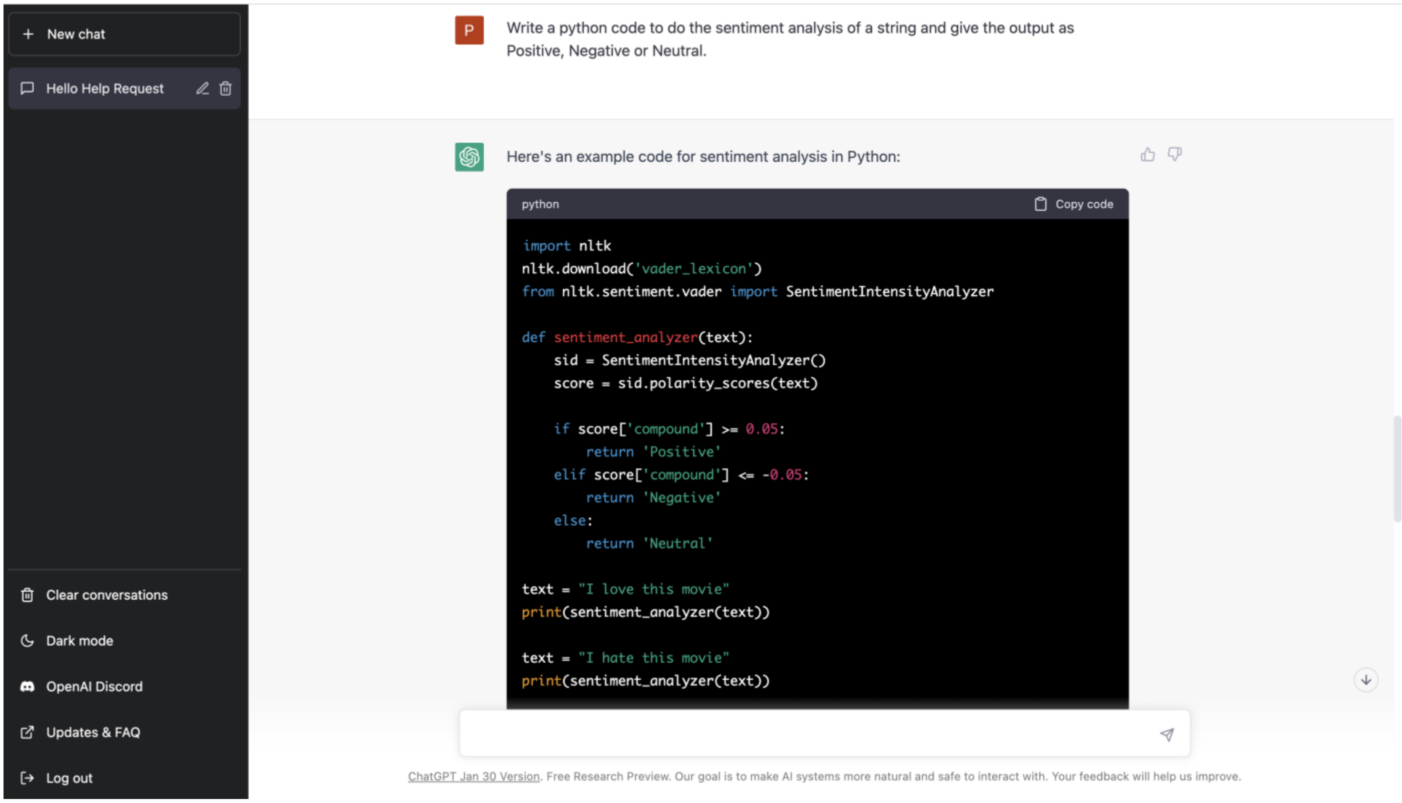
Data 228

IN-CLASS EXERCISE: 1

Group Name: Data Divers

1. Sentiment Analysis: Below are the screenshots of the program generated by ChatGPT

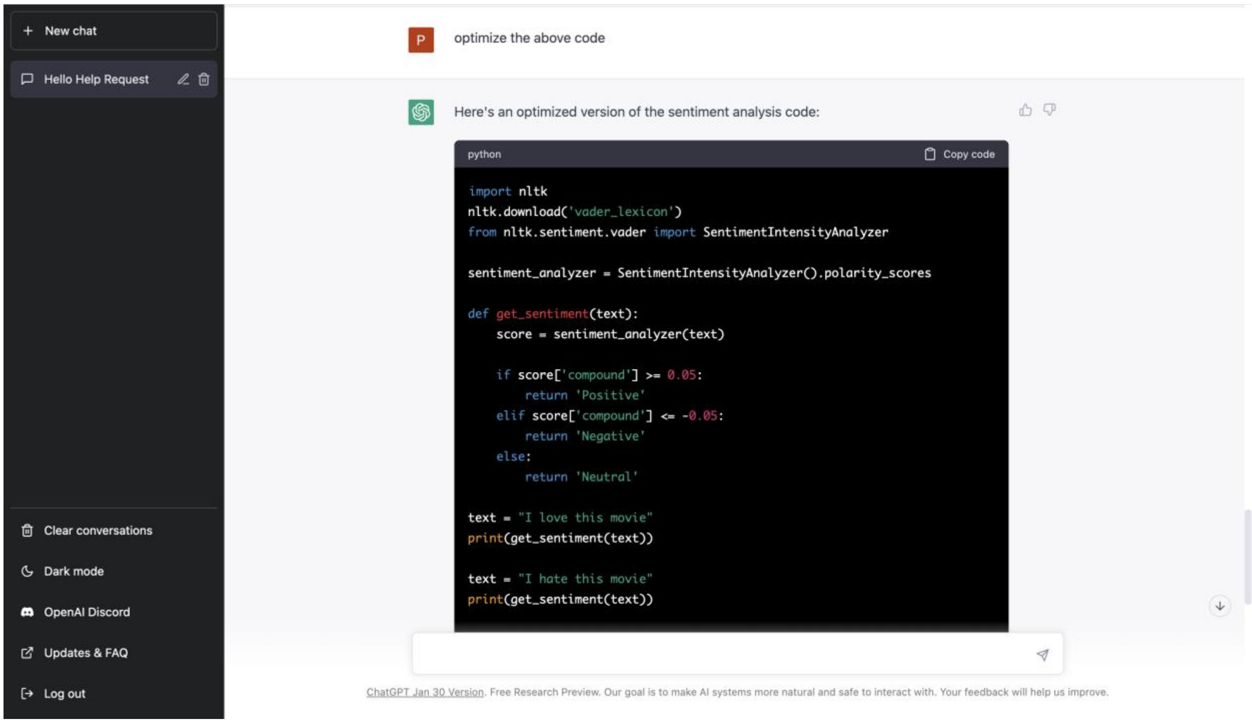


Write a python code to do the sentiment analysis of a string and give the output as Positive, Negative or Neutral.

Here's an example code for sentiment analysis in Python:

```python
import nltk
nltk.download('vader_lexicon')
from nltk.sentiment.vader import SentimentIntensityAnalyzer

def sentiment_analyzer(text):
    sid = SentimentIntensityAnalyzer()
    score = sid.polarity_scores(text)

    if score['compound'] >= 0.05:
        return 'Positive'
    elif score['compound'] <= -0.05:
        return 'Negative'
    else:
        return 'Neutral'

text = "I love this movie"
print(sentiment_analyzer(text))

text = "I hate this movie"
print(sentiment_analyzer(text))
```

ChatGPT Jan 30 Version. Free Research Preview. Our goal is to make AI systems more natural and safe to interact with. Your feedback will help us improve.



P optimize the above code

Here's an optimized version of the sentiment analysis code:

```python
import nltk
nltk.download('vader_lexicon')
from nltk.sentiment.vader import SentimentIntensityAnalyzer

sentiment_analyzer = SentimentIntensityAnalyzer().polarity_scores

def get_sentiment(text):
    score = sentiment_analyzer(text)

    if score['compound'] >= 0.05:
        return 'Positive'
    elif score['compound'] <= -0.05:
        return 'Negative'
    else:
        return 'Neutral'

text = "I love this movie"
print(get_sentiment(text))

text = "I hate this movie"
print(get_sentiment(text))
```

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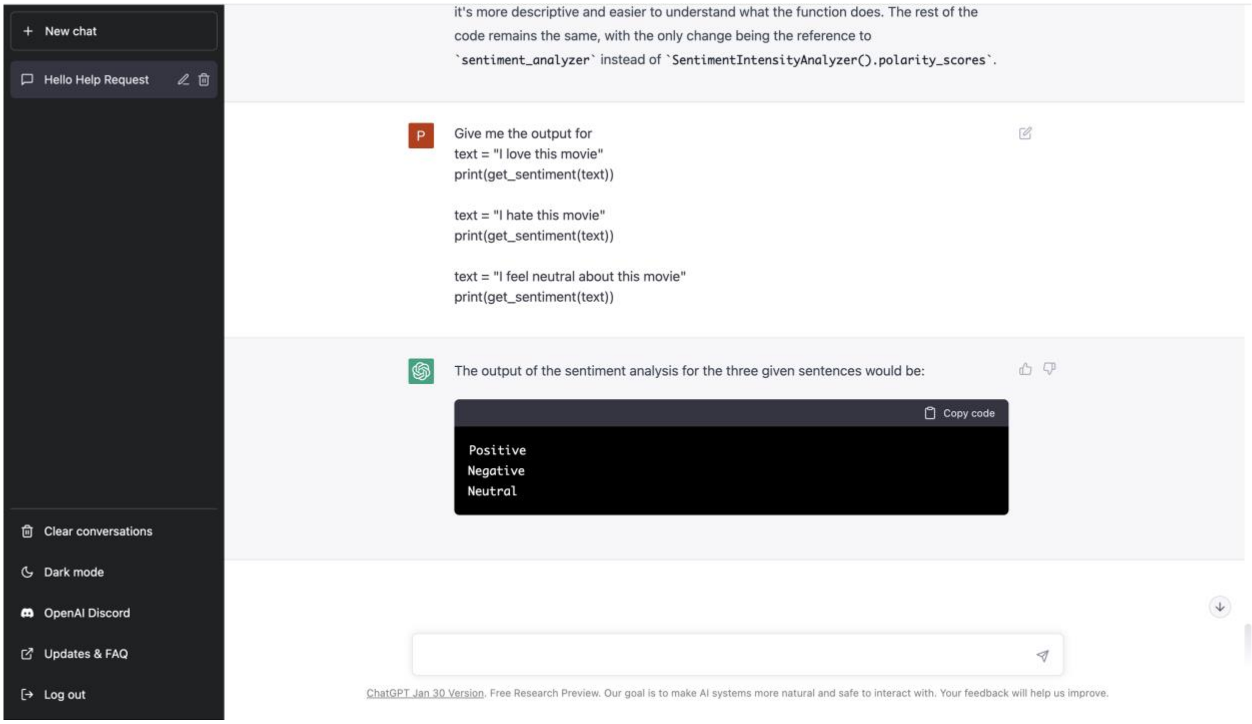

it's more descriptive and easier to understand what the function does. The rest of the code remains the same, with the only change being the reference to `sentiment_analyzer` instead of `SentimentIntensityAnalyzer().polarity_scores`.

P Give me the output for
text = "I love this movie"
print(get_sentiment(text))

text = "I hate this movie"
print(get_sentiment(text))

text = "I feel neutral about this movie"
print(get_sentiment(text))

The output of the sentiment analysis for the three given sentences would be:

```
Positive
Negative
Neutral
```

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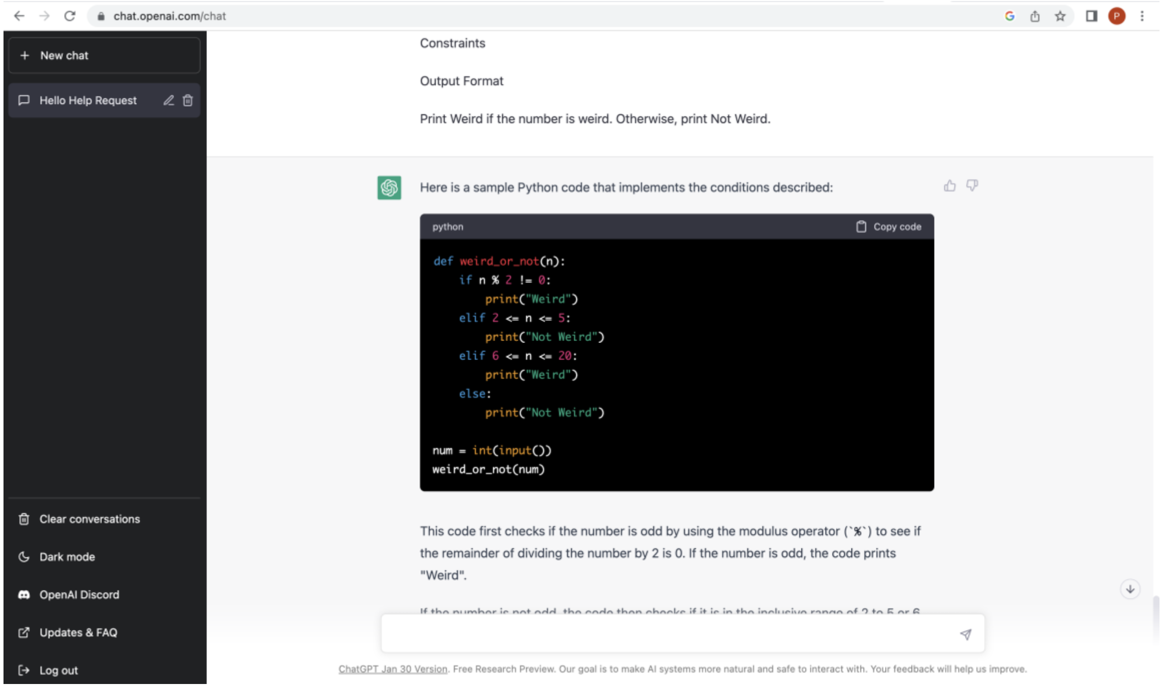
2. Use a language model to help your team solve HackerRank coding problems, in the language of your choice

1. Easy:



Constraints

Output Format

Print Weird if the number is weird. Otherwise, print Not Weird.

Here is a sample Python code that implements the conditions described:

```python
def weird_or_not(n):
    if n % 2 != 0:
        print("Weird")
    elif 2 <= n <= 5:
        print("Not Weird")
    elif 6 <= n <= 20:
        print("Weird")
    else:
        print("Not Weird")

num = int(input())
weird_or_not(num)
```

This code first checks if the number is odd by using the modulus operator (`%`) to see if the remainder of dividing the number by 2 is 0. If the number is odd, the code prints "Weird".

If the number is not odd, the code then checks if it is in the inclusive range of 2 to 5 or 6

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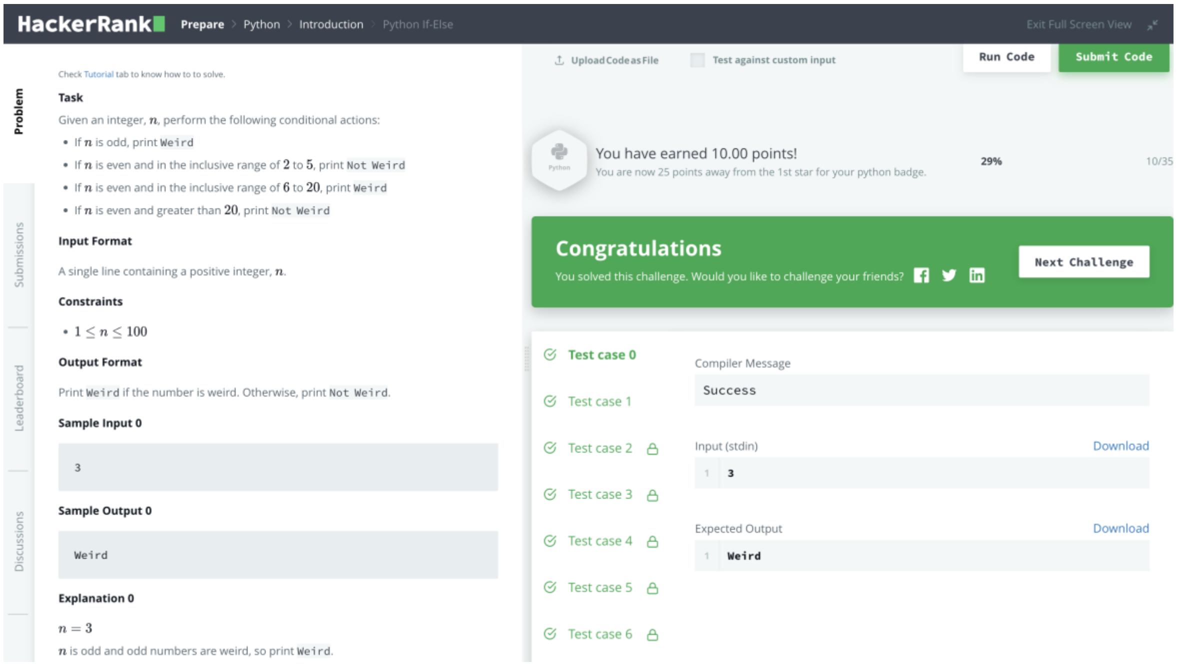


Check Tutorial tab to know how to to solve.

Task

Given an integer, n, perform the following conditional actions:

- If n is odd, print `Weird`
- If n is even and in the inclusive range of 2 to 5, print `Not Weird`
- If n is even and in the inclusive range of 6 to 20, print `Weird`
- If n is even and greater than 20, print `Not Weird`

Input Format

A single line containing a positive integer, n.

Constraints

- $1 \leq n \leq 100$

Output Format

Print `Weird` if the number is weird. Otherwise, print `Not Weird`.

Sample Input 0

```
3
```

Sample Output 0

```
Weird
```

Explanation 0

$n = 3$

n is odd and odd numbers are weird, so print `Weird`.

You have earned 10.00 points!

You are now 25 points away from the 1st star for your python badge.

29% 10/35

Congratulations

You solved this challenge. Would you like to challenge your friends?

✓ Test case 0
✓ Test case 1
✓ Test case 2
✓ Test case 3
✓ Test case 4
✓ Test case 5
✓ Test case 6

Compiler Message

```
Success
```

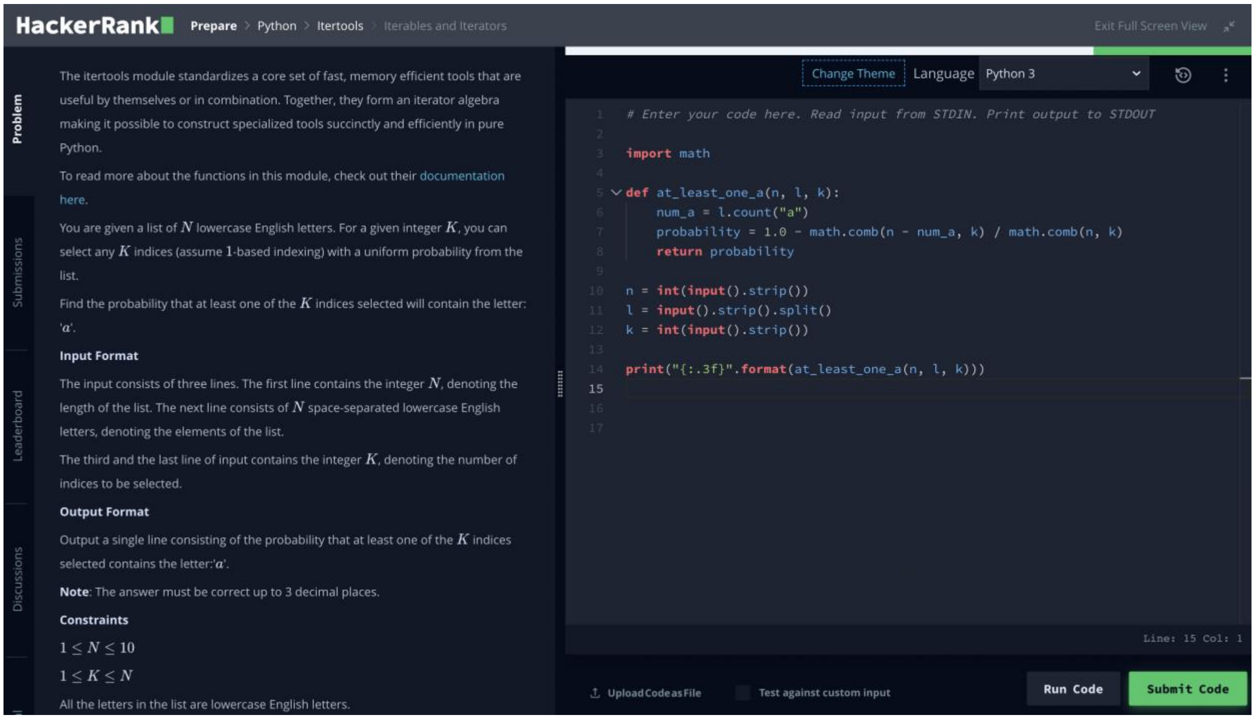
Input (stdin)

```
3
```

Expected Output

```
Weird
```

2. Medium:



The itertools module standardizes a core set of fast, memory efficient tools that are useful by themselves or in combination. Together, they form an iterator algebra making it possible to construct specialized tools succinctly and efficiently in pure Python.

To read more about the functions in this module, check out their documentation here.

You are given a list of N lowercase English letters. For a given integer K, you can select any K indices (assume 1-based indexing) with a uniform probability from the list.

Find the probability that at least one of the K indices selected will contain the letter: 'a'.

Input Format

The input consists of three lines. The first line contains the integer N, denoting the length of the list. The next line consists of N space-separated lowercase English letters, denoting the elements of the list.

The third and the last line of input contains the integer K, denoting the number of indices to be selected.

Output Format

Output a single line consisting of the probability that at least one of the K indices selected contains the letter:'a'.

Note: The answer must be correct up to 3 decimal places.

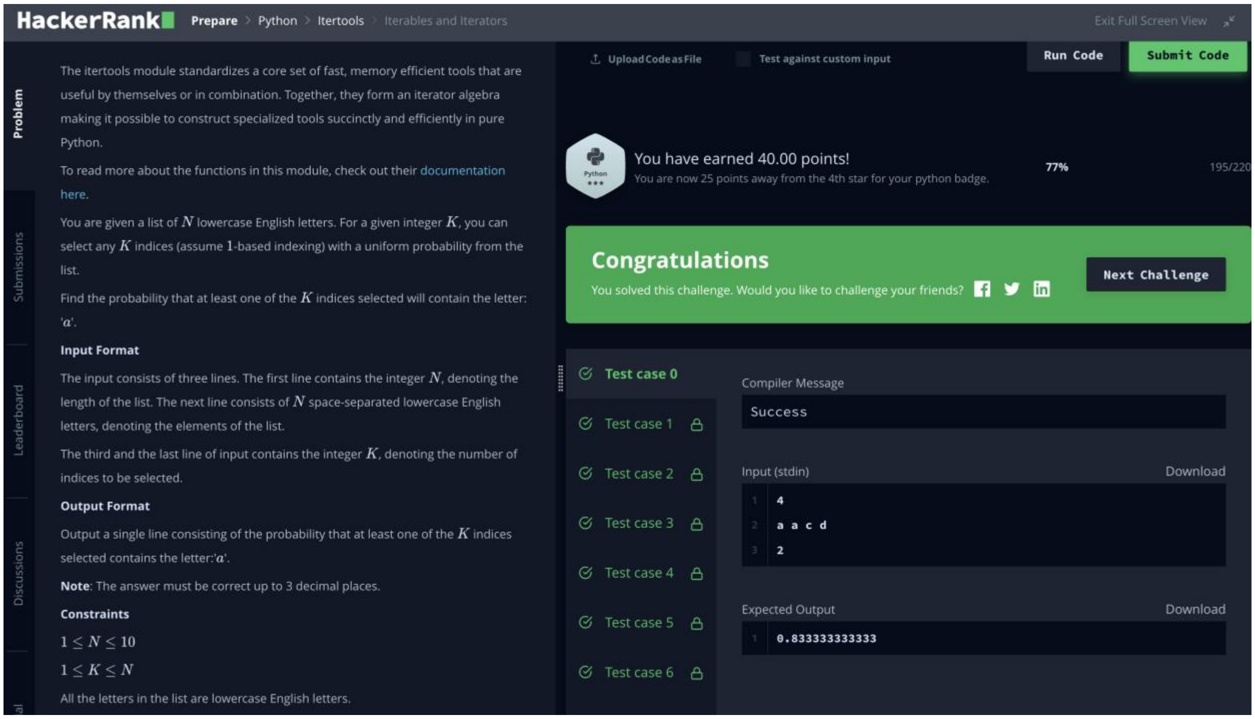
Constraints

$1 \leq N \leq 10$

$1 \leq K \leq N$

All the letters in the list are lowercase English letters.

```python
# Enter your code here. Read input from STDIN. Print output to STDOUT

import math

def at_least_one_a(n, l, k):
    num_a = l.count("a")
    probability = 1.0 - math.comb(n - num_a, k) / math.comb(n, k)
    return probability

n = int(input().strip())
l = input().strip().split()
k = int(input().strip())

print("{:.3f}".format(at_least_one_a(n, l, k)))


```



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Output Format

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Note: The answer must be correct up to 3 decimal places.

Constraints

$1 \leq N \leq 10$

$1 \leq K \leq N$

All the letters in the list are lowercase English letters.

You have earned 40.00 points!

You are now 25 points away from the 4th star for your python badge.

Congratulations

You solved this challenge. Would you like to challenge your friends?

Compiler Message

```
Success
```

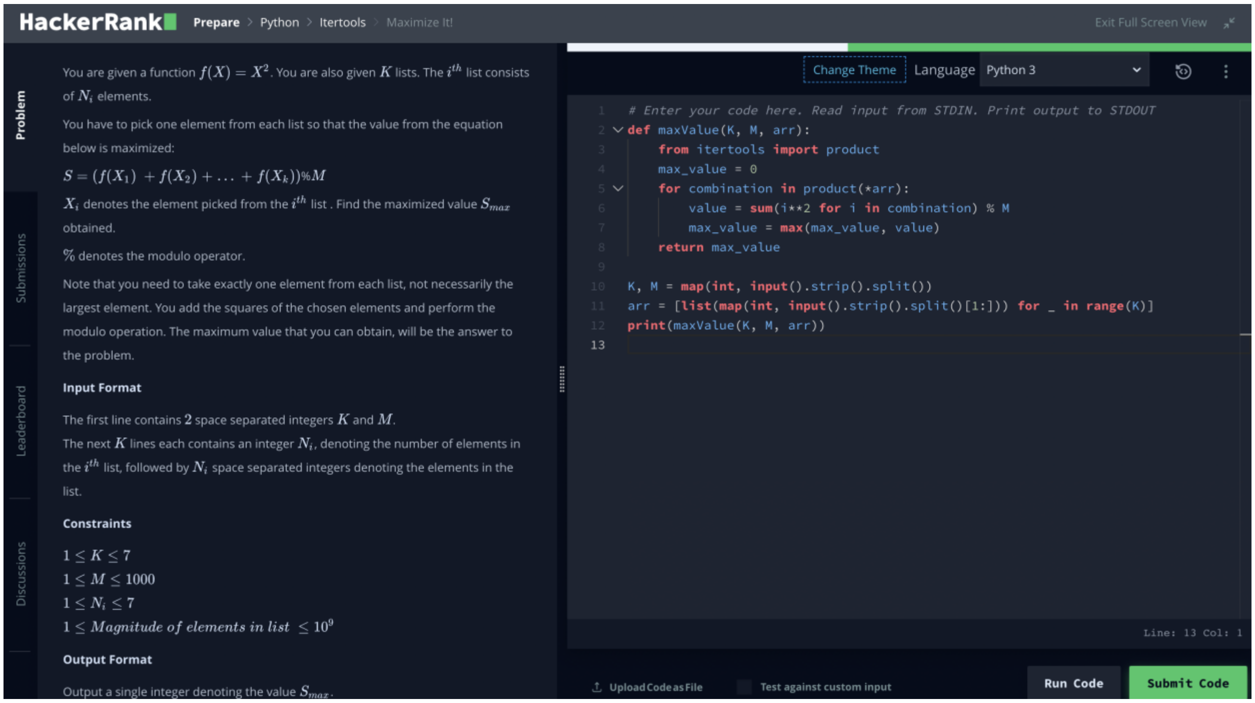
Input (stdin)

```
4
a a c d
2
```

Expected Output

```
0.833333333333
```

3. Hard:



You are given a function $f(X) = X^2$. You are also given K lists. The ith list consists of N_i elements.

You have to pick one element from each list so that the value from the equation below is maximized:

$$S = (f(X_1)\ + f(X_2) + \ldots + f(X_k))\%M$$

X_i denotes the element picked from the ith list . Find the maximized value S_{max} obtained.

$\%$ denotes the modulo operator.

Note that you need to take exactly one element from each list, not necessarily the largest element. You add the squares of the chosen elements and perform the modulo operation. The maximum value that you can obtain, will be the answer to the problem.

Input Format

The first line contains 2 space separated integers K and M.
The next K lines each contains an integer N_i, denoting the number of elements in the ith list, followed by N_i space separated integers denoting the elements in the list.

Constraints

$1 \leq K \leq 7$
$1 \leq M \leq 1000$
$1 \leq N_i \leq 7$
$1 \leq \textit{Magnitude of elements in list} \leq 10^9$

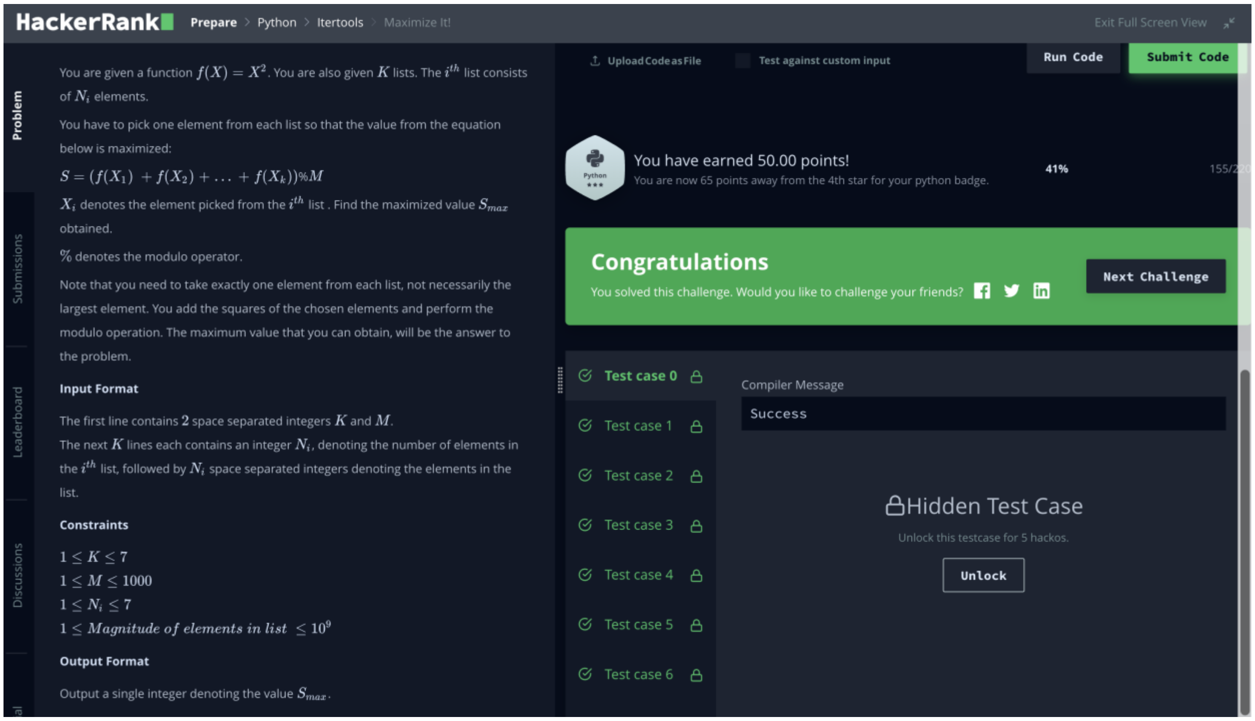
Output Format

Output a single integer denoting the value S_{max}.

```python
# Enter your code here. Read input from STDIN. Print output to STDOUT
def maxValue(K, M, arr):
    from itertools import product
    max_value = 0
    for combination in product(*arr):
        value = sum(i**2 for i in combination) % M
        max_value = max(max_value, value)
    return max_value

K, M = map(int, input().strip().split())
arr = [list(map(int, input().strip().split()[1:])) for _ in range(K)]
print(maxValue(K, M, arr))

```



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$1 \leq K \leq 7$
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$1 \leq N_i \leq 7$
$1 \leq \textit{Magnitude of elements in list} \leq 10^9$

Output Format

Output a single integer denoting the value S_{max}.

You have earned 50.00 points!
You are now 65 points away from the 4th star for your python badge.

Congratulations

You solved this challenge. Would you like to challenge your friends?

✓ Test case 0
✓ Test case 1
✓ Test case 2
✓ Test case 3
✓ Test case 4
✓ Test case 5
✓ Test case 6

Compiler Message

Success

Hidden Test Case

Unlock this testcase for 5 hackos.