ASSIGNMENT WEEK -1

Solutions to the given problems:

1. Arithmetic Operators

```
a = int(input())
b = int(input())

if 1<=a<=10**10 and 1<=b<=10**10:
 sum = a+b
 difference = a-b
 product = a*b

 print (sum)
 print (difference)
 print (product)
```

2. Compress the String

```
import itertools

def compress_the_string(string):
    res = itertools.groupby(string)
    for k, g in res:
        print((len(list(g)), int(k)), end=' ')

if __name__ == '__main__':
    string = input()
    compress_the_string(string)
```

3. The Minion Game

```
def minion_game(string):
    # your code goes here
    vowels = 'AEIOU'
```

```
    stuart_score = 0
    kevin_score = 0

    for i in range(len(string)):
        if string[i] in vowels:
            kevin_score += len(string) - i
        else:
            stuart_score += len(string) - i

    if stuart_score > kevin_score:
        print('Stuart', stuart_score)
    elif stuart_score < kevin_score:
        print('Kevin', kevin_score)
    else:
        print('Draw')
```

4. Write a function

```
def is_leap(year):
    leap = False

    # Write your logic here
    if year % 400 == 0:
        leap = True
    elif year % 100 == 0:
        leap = False
    elif year % 4 == 0:
        leap = True
    return leap

year = int(input())
```

5. Iterables and Iterators

```
import itertools

def find_probability(arr, k):
    # generate all possible combinations
    all_combinations = list(itertools.combinations(arr, k))
    # find total number of combinations
    total_combinations = len(all_combinations)
```

```
    # find number of combinations that satisfy the condition
    satisfied_combinations = len([x for x in all_combinations if 'a' in x])
    # find probability
    probability = satisfied_combinations / total_combinations
    # print probability
    print(round(probability, 4))



if __name__ == '__main__':
    n = int(input())
    arr = list(input().split())
    k = int(input())

    find_probability(arr, k)
```

6. Tuples

```
if __name__ == '__main__':
    n = int(input())
    integer_list = map(int, input().split())

    print(hash(tuple(integer_list)))
```

7. Finding the percentage

```
if __name__ == '__main__':
    n = int(input())
    student_marks = {}
    for _ in range(n):
        name, *line = input().split()
        scores = list(map(float, line))
        student_marks[name] = scores
    query_name = input()


    print("%.02f" % (sum(student_marks[query_name]) / 3))
```

8. String Formatting

```
def print_formatted(number):
    # your code goes here
    '''Prints number in decinmal, ocal, hexadecimal, and binary'''
    for i in range(1, number + 1):
        width = len(f"{number:b}")
        print(f"{i:{width}} {i:{width}o} {i:{width}X} {i:{width}b}")

if __name__ == '__main__':
    n = int(input())
    print_formatted(n)
```

Raj Nandani
KIIT University