```
import numpy as np
import os

class Q1:
    def calculator(self,num1, num2 , option):
        switcher = {
            1: num1 + num2,
            2: num1 - num2,
            3: num1 * num2,
            4: num1 / num2,
        }
        return    switcher.get(option,"invalid option")

    def main(self):
        num1 = int(input("Enter number 1 "))
        num2 = int(input("Enter number 2 "))

        print("Enter 1 for addition")
        print("Enter 2 for subtraction")
        print("Enter 3 for multiplication")
        print("Enter 4 for division")

        option = int(input("Enter option"))
        print(self.calculator(num1,num2,option))


class Q2:
    def main(self):
        with open("input2.txt" , "r") as file1:
            data = file1.read()
        data_1 = data[::-1]

        file2 = open("output2.txt" , "w")
        file2.write(data_1)
        file2.close()

        file2 = open("output2.txt" , "r")
        print(file2.read())


class Q3:
    def binary_search(self,array , key):

        if len(array) <= 0:
            return -1

        low = 0
        high = len(array) - 1

        mid = (low + high)/2
        mid = int(mid)
        # print("DEBUG: mid", mid , "array[mid]" , array[mid])

        if key == array[mid]:
            return mid + 1
        elif key < array[mid]:
            answer =  self.binary_search(array[:mid] , key)
            if answer == -1:
                return -1
            else:
                return answer
        else:
            answer = self.binary_search(array[mid+1:] , key)
            if answer == -1:
```

```
                return -1
            else:
                return mid + answer

    def main(self):
        array = [int(x) for x in input("Enter the elements with spacing:
").split()]
        key = int(input("Enter the key: "))

        array.sort()
        print("The sorted array is: " , array)
        print("Result at index: " , self.binary_search(array,key))



class Q4:
    def main(self):
        word_list = [str(word) for word in input("Enter the word list
").split()]
        print(word_list)

        word_list.sort()
        print(word_list)

if __name__ == "__main__":
    q1 = Q1()
    q2 = Q2()
    q3 = Q3()
    q4 = Q4()

    q1.main()
    print("-------------------------")
    q2.main()
    print("-------------------------")
    q3.main()
    print("-------------------------")
    q4.main()
    print("-------------------------")
```

```
Student@dblab-hp-29:~/Desktop/KaustavLABS4/IT LAB/LAB 03$ python3 all.py
Enter number 1 34
Enter number 2 45
Enter 1 for addition
Enter 2 for subtraction
Enter 3 for multiplication
Enter 4 for division
Enter option2
-11
-----------------------

txeet modnaR erom emoS
txet modnar erom emoS

 txet erom emos

30 keew bal eht ni
2 noitseuq morf elif tupni eht
 morf stnetnoc eht era esehT
-----------------------
Enter the elements with spacing: 34 45 56 23 11
Enter the key: 56
The sorted array is:  [11, 23, 34, 45, 56]
Result at index:  3
-----------------------
Enter the word list banna apple peach guava mango
['banna', 'apple', 'peach', 'guava', 'mango']
['apple', 'banna', 'guava', 'mango', 'peach']
-----------------------
```

Q2 file reversing