

PRACTICAL 2

2.1.1. List operations

Write a Python program that implements a menu-driven interface for managing a list of integers. The program should have the following menu options:

1. Add
2. Remove
3. Display
4. Quit

The program should repeatedly prompt the user to enter a choice from the menu. Depending on the choice selected, the program should perform the following actions:

- **Add:** Prompts the user to enter an integer and add it to the integer list. If the input is not a valid integer, display "Invalid input".
- **Remove:** Prompts the user to enter an integer to remove from the list. If the integer is found in the list, remove it; otherwise, display "Element not found". If the list is empty, display "List is empty".
- **Display:** Displays the current list of integers. If the list is empty, display "List is empty".
- **Quit:** Exits the program.
- The program should handle invalid menu choices by displaying "Invalid choice". Ensure that the program continues to prompt the user until they choose to quit (option 4).

Sample Test Cases

```
listOps.py
1 #!/usr/bin/env python3
2
3 def main():
4     l1 = []
5     while True:
6         print("\nMenu:")
7         print("1. Add")
8         print("2. Remove")
9         print("3. Display")
10        print("4. Quit")
11        choice = input("Enter choice: ")
12
13        if choice == '1':
14            add = int(input("Integer: "))
15            l1.append(add)
16            print(f"List after adding: {l1}")
17        elif choice == '2':
18            if len(l1) == 0:
19                print("List is empty")
20            elif len(l1) != 0:
21                remove = int(input("Integer: "))
22                if remove not in l1:
23                    print("Element not found")
24                else:
25                    l1.remove(remove)
26                    print(f"List after removing: {l1}")
27        elif choice == '3':
28            if len(l1) == 0:
29                print("List is empty")
30            else:
31                print(l1)
32        elif choice == '4':
33            break
34        else:
35            print("Invalid choice")
36
37 if __name__ == '__main__':
38     main()
```

Average time: 0.084 s, Maximum time: 0.125 s
2 out of 2 shown test case(s) passed
1 out of 1 hidden test case(s) passed

2.1.2. Dictionary Operations

Write a Python program to perform the following dictionary operations:

- Create an empty dictionary and display it.
- Ask the user how many items to add, then input key-value pairs.
- Show the dictionary after adding items.
- Ask the user to update a key's value. Print "Value updated" if the key exists, otherwise print "Key not found".
- Retrieve and print a value using a key. If not found, print "Key not found".
- Use get() to retrieve a value. If the key doesn't exist, print "Key not found".
- Delete a key-value pair. If the key exists, delete and print "Deleted". If not, print "Key not found".
- Display the updated dictionary.

Note: Refer to visible test cases.

Sample Test Cases

```
dictOpera...
1 d={}
2 print("Empty Dictionary: {}")
3 n=int(input("Number of items: "))
4 for i in range(n):
5     key=input("key: ")
6     value=input("value: ")
7     d[key]=value
8     print("Dictionary:",d)
9
10 update_key=input("Enter the key to update: ")
11 if update_key in d:
12     d[update_key]=input("Enter the new value: ")
13     print("Value updated")
14 else:
15     print("Key not found")
16
17 retrieve_keys=input("Enter the key to retrieve: ")
18 if retrieve_keys in d:
```

Average time: 0.040 s, Maximum time: 0.047 s
2 out of 2 shown test case(s) passed
2 out of 2 hidden test case(s) passed

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2.2.1. Linear search Technique

Write a program to check whether the given element is present or not in the array of elements using linear search.

Input format:

- The first line of input contains the array of integers which are separated by space
- The last line of input contains the key element to be searched

Output format:

- If the element is found, print the index.
- If the element is not found, print **Not found**.

Sample Test Case:

Input:
1 2 3 4 3 5 6
3

Output:
2

Sample Test Cases

```
1 l=list(map(int,input().split()))
2 key=int(input())
3 flag=0
4 for i in range(len(l)):
5     if (key==l[i]):
6         flag=1
7         pos=i
8         break
9 if (flag==1):
10    print(pos)
11 else:
12    print("Not found")
```

Average time: 0.010 s, Maximum time: 0.014 s, 2 out of 2 shown test case(s) passed, 2 out of 2 hidden test case(s) passed

Test case 1 44 ms

Expected output	Actual output
1 2 3 4 3 5 6	1 2 3 4 3 5 6
3	3
2	2

Terminal Test cases

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2.2.2. Captain of the Team

You are provided with the heights of 11 cricket players (in centimeters). Your task is to identify the tallest player, who will be selected as the captain of the team.

Input Format:

The first line of input will contain 11 integers, each representing the height of a player (in centimeters), each separated by a space.

Output Format

The output should be the height (in centimeters) of the tallest player.

Sample Test Cases

```
1 heights=list(map(int,input().split()))
2 tallest_player=max(heights)
3 print(tallest_player)
```

Average time: 0.004 s, Maximum time: 0.005 s, 1 out of 1 shown test case(s) passed, 2 out of 2 hidden test case(s) passed

Test case 1 6 ms

Expected output	Actual output
171 169 185 156 174 191 186 190 187 172 168	171 169 185 156 174 191 186 190 187 172 168
191	191

Terminal Test cases

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