**Ganpat University**

**Faculty of Engineering & Technology**

**Computer Science & Engineering**

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***Sem:- 2***

***Sub: - ESFP-II***

***Enrollment No.:- 23162121027***

***Prac:- 16***

**Practical 16**

***Definition:***

***Complete the code for the object assigned to you to satisfy following***

***specifications.***

1. You must perform this practical on given object.

2. Create four separate modules in your given object practical and this should be

access by the use of switch case condition.

3. In first module you have to implement the concept of vector where you have to

use all respective function that is push\_back(), pop\_back(), size(), insert(),

begin(), end(), and swap(), etc.

4. In second module you have to implement the concept of deque where you have

to use all respective function that is push\_back(), push\_front(), pop\_back(),

pop\_front(), front(), back(), and size() function.

5. In third module you have to implement the concept of list where you have to

use all respective function that is push\_back(), push\_front(), pop\_back(),

pop\_front(), front(), back(), and size(), reverse(), unique(), sort(), and remove()

function.

6. In fourth and fifth module you have to implement the concept of set and multiset,

where you have to use all respective function that is insert(),size(), remove(),

clear(),lower\_bound(), upper\_bound(), etc.

7. In 6th, 7th, 8th, and 9th module, you have to implement the concept of Map,

Multimap, Stack and Queue related minimum 6 pre-defined function.

8. Experiments with minimum 5 data/record from the user and display according

***to the choice of user category wise. (Minimum eight different options should be***

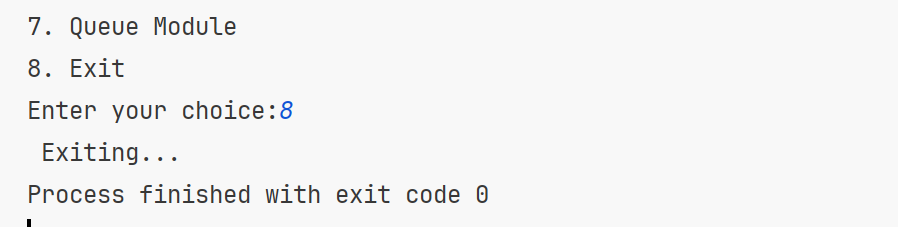
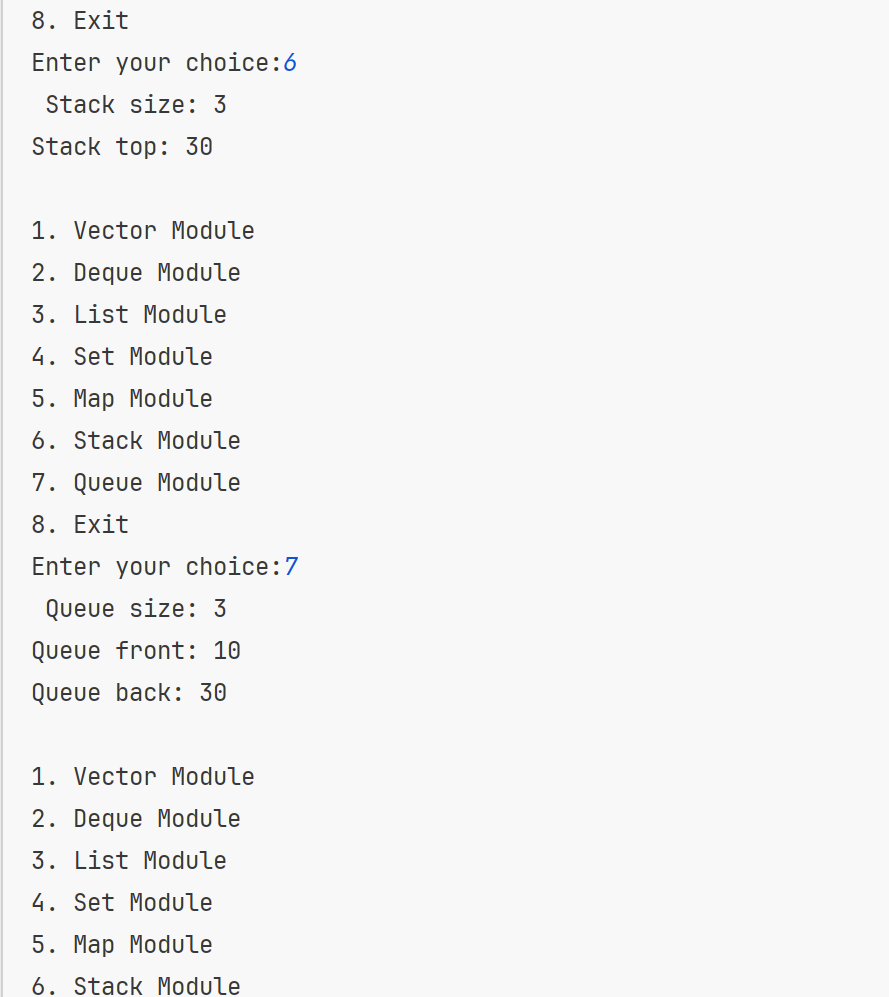
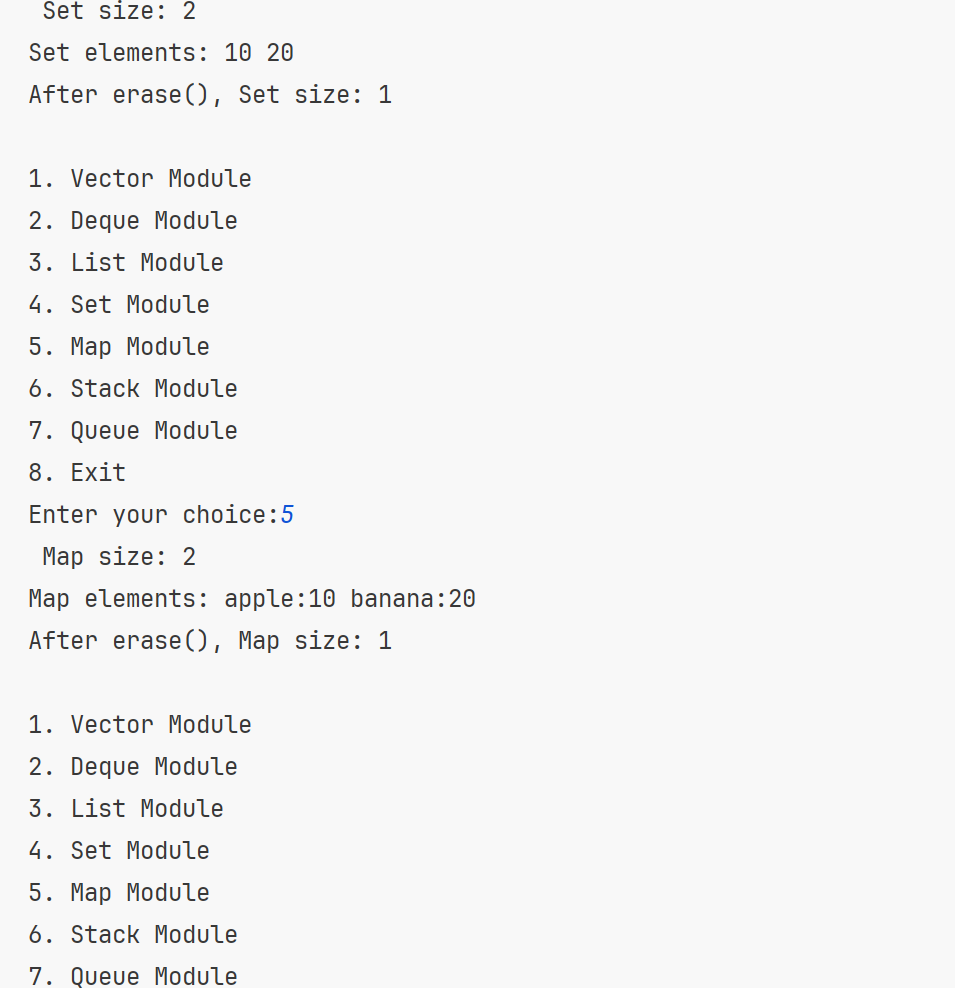
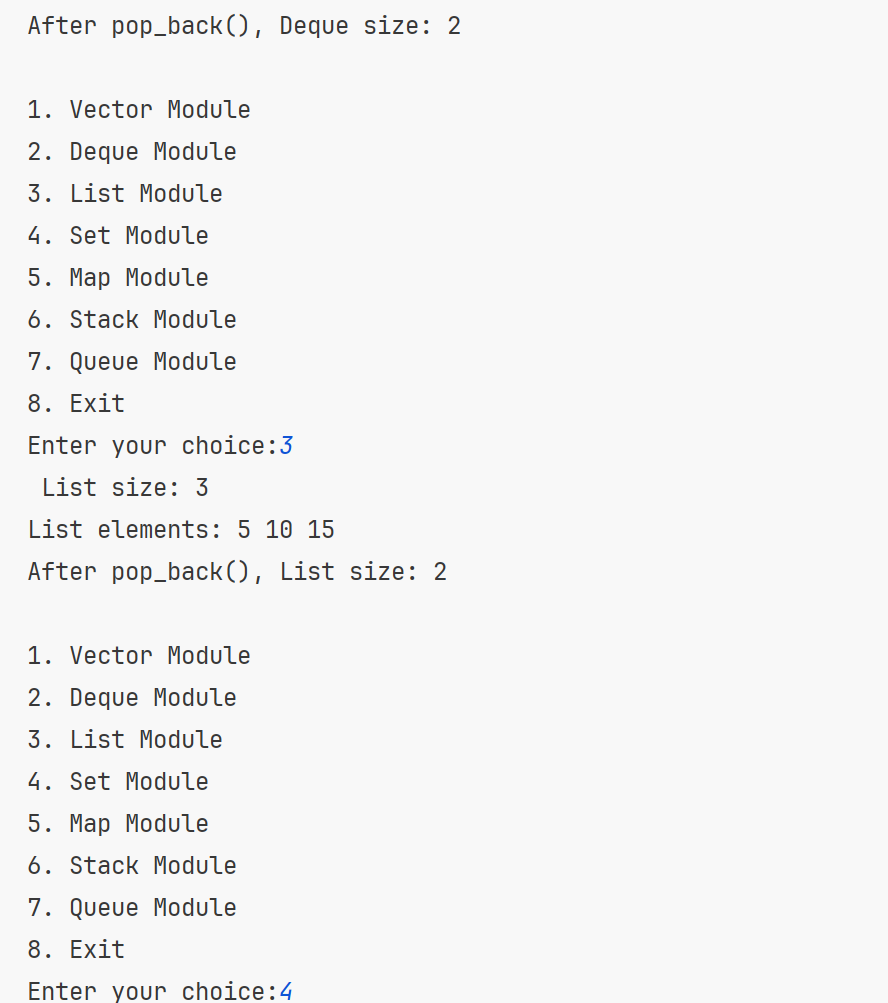
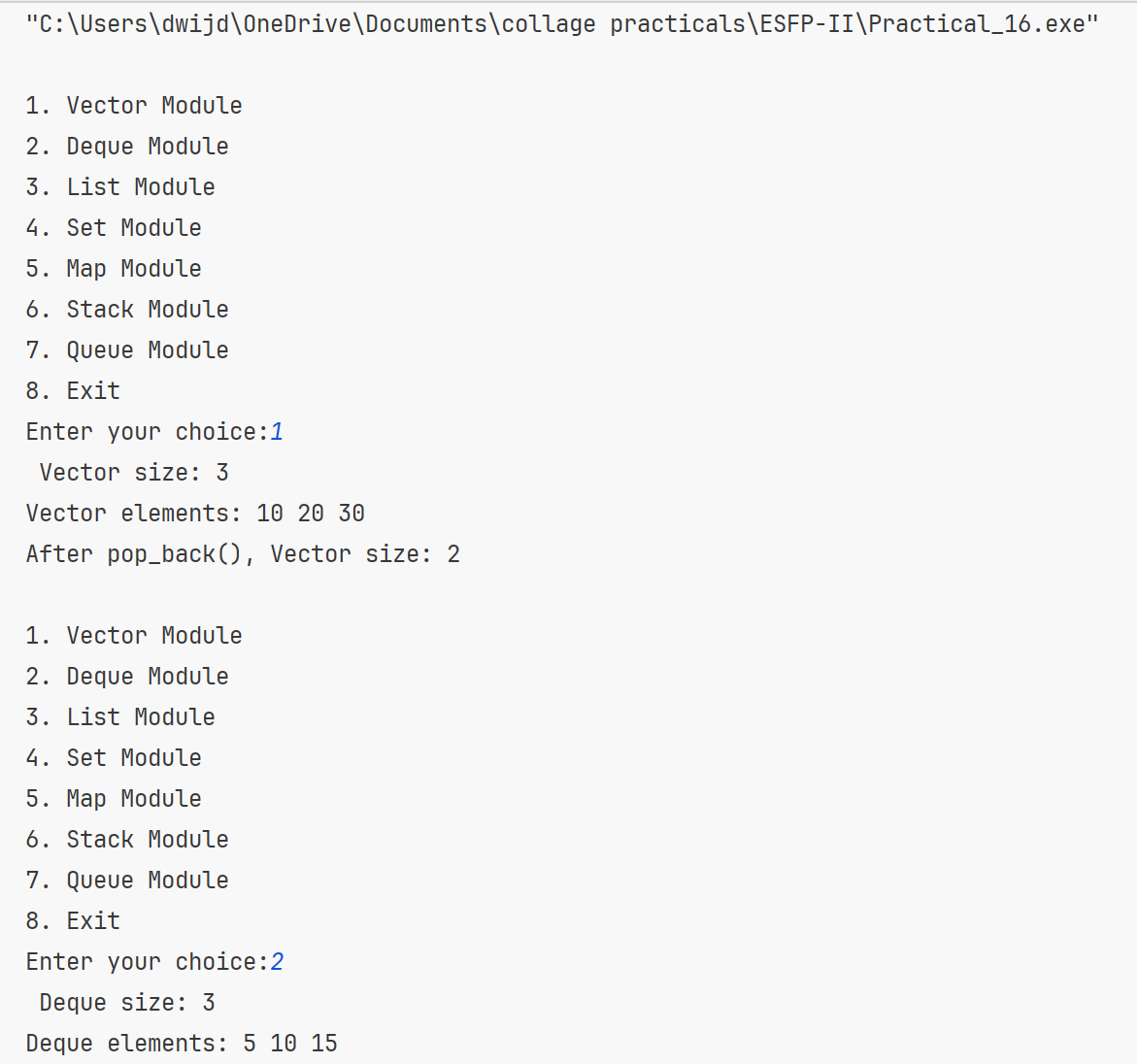
***there for displaying purpose of information, and if you want more, as per***

***program requirement you can add more choices).***

***.Code:-***

#include <iostream>  
#include <vector>  
#include <deque>  
#include <list>  
#include <set>  
#include <map>  
#include <stack>  
#include <queue>  
#include <algorithm>  
  
using namespace std**;**void vectorModule**()  
{** vector<int> vec**;** vec**.**push\_back**(**10**);** vec**.**push\_back**(**20**);** vec**.**push\_back**(**30**);** cout << "Vector size: " << vec**.**size**()** << endl**;** cout << "Vector elements: "**;** for **(**auto i : vec**)** cout << i << " "**;** cout << endl**;** vec**.**pop\_back**();** cout << "After pop\_back(), Vector size: " << vec**.**size**()** << endl**;  
}**void dequeModule**()  
{** deque<int> dq**;** dq**.**push\_back**(**10**);** dq**.**push\_front**(**5**);** dq**.**push\_back**(**15**);** cout << "Deque size: " << dq**.**size**()** << endl**;** cout << "Deque elements: "**;** for **(**auto i : dq**)** cout << i << " "**;** cout << endl**;** dq**.**pop\_back**();** cout << "After pop\_back(), Deque size: " << dq**.**size**()** << endl**;  
}**void listModule**()  
{** list<int> li**;** li**.**push\_back**(**10**);** li**.**push\_front**(**5**);** li**.**push\_back**(**15**);** cout << "List size: " << li**.**size**()** << endl**;** cout << "List elements: "**;** for **(**auto i : li**)** cout << i << " "**;** cout << endl**;** li**.**pop\_back**();** cout << "After pop\_back(), List size: " << li**.**size**()** << endl**;  
}**void setModule**()  
{** set<int> s**;** s**.**insert**(**10**);** s**.**insert**(**20**);** s**.**insert**(**10**);** *// Duplicate, won't be added* cout << "Set size: " << s**.**size**()** << endl**;** cout << "Set elements: "**;** for **(**auto i : s**)** cout << i << " "**;** cout << endl**;** s**.**erase**(**20**);** cout << "After erase(), Set size: " << s**.**size**()** << endl**;  
}**void mapModule**()  
{** map<string**,** int> mp**;** mp**[**"apple"**]** = 10**;** mp**[**"banana"**]** = 20**;** cout << "Map size: " << mp**.**size**()** << endl**;** cout << "Map elements: "**;** for **(**auto i : mp**)** cout << i**.**first << ":" << i**.**second << " "**;** cout << endl**;** mp**.**erase**(**"banana"**);** cout << "After erase(), Map size: " << mp**.**size**()** << endl**;  
}**void stackModule**()  
{** stack<int> s**;** s**.**push**(**10**);** s**.**push**(**20**);** s**.**push**(**30**);** cout << "Stack size: " << s**.**size**()** << endl**;** cout << "Stack top: " << s**.**top**()** << endl**;  
}**void queueModule**()  
{** queue<int> q**;** q**.**push**(**10**);** q**.**push**(**20**);** q**.**push**(**30**);** cout << "Queue size: " << q**.**size**()** << endl**;** cout << "Queue front: " << q**.**front**()** << endl**;** cout << "Queue back: " << q**.**back**()** << endl**;  
}**int main**()  
{** int choice**;** do **{** cout << "\n1. Vector Module\n2. Deque Module\n3. List Module\n4. Set Module\n5. Map Module\n6. Stack Module\n7. Queue Module\n8. Exit\nEnter your choice: "**;** cin >> choice**;** switch **(**choice**)  
 {** case 1: vectorModule**();** break**;** case 2: dequeModule**();** break**;** case 3: listModule**();** break**;** case 4: setModule**();** break**;** case 5: mapModule**();** break**;** case 6: stackModule**();** break**;** case 7: queueModule**();** break**;** case 8: cout << "Exiting..."**;** break**;** default: cout << "Invalid choice!" << endl**;  
 }  
 }** while **(**choice != 8**);** return 0**;  
}**

***Output:-***

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