

# Prelab Assignment 1

## The Main Program

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## Prelab Code

```
#include <iostream>
#include <string>

using namespace std;

// vector values
double *v;
int count;
int size;
// string representing menu options
string menuString = "Main menu:\n1. Print the array\n2. Append element at the end\n3. Remove
last element\n4. Insert one element\n5. Exit \nSelect an option: _";

// Initialize method stub
void Initialize();
// Finalize method stub
void Finalize();
// runMenu method stub
int runMenu();
// selectStatement method stub
int selectStatement(char selection);

// initializes the vector values and runs the menu
int main()
{
    Initialize();
    return runMenu();
}

// runs the menu, displaying menu options and getting user input
int runMenu()
{
    char selection;
    cout << menuString;
    cin >> selection;
```

```
    return selectStatement(selection);
}

// represents logic for performing the desired action as specified by the user
int selectStatement(char selection)
{
    switch (selection) {
        // print the array
        case '1':
            cout << "Print the array" << endl;
            runMenu();
            // append element at end
        case '2':
            cout << "Append element at the end" << endl;
            runMenu();
            // remove last element
        case '3':
            cout << "Remove last element" << endl;
            runMenu();
            // insert one element
        case '4':
            cout << "Insert one element" << endl;
            runMenu();
            // exit the program
        case '5':
            Finalize();
            return 0;
            break;
            // if invalid, display an error and run the menu again
        default:
            cout << "Error: please enter a valid option" << endl;
            runMenu();
    }
}
```

// initializes vector values

```
void Initialize()
{
    size = 2;
    count = 0;
    v = new double[size];

}

// deletes vector to free up memory space
void Finalize()
{
    delete[] v;
}
```

## Prelab Screenshots

Compilation and Option 1:

```
[root@de1soclinux:~/Labs/Lab1/Prelab1# g++ -o prelab1 main.cpp
[root@de1soclinux:~/Labs/Lab1/Prelab1# ./prelab1
```

Main menu:

1. Print the array
2. Append element at the end
3. Remove last element
4. Insert one element
5. Exit

```
[Select an option: _1
Print the array
```

Option 2:

Main menu:

1. Print the array
2. Append element at the end
3. Remove last element
4. Insert one element
5. Exit

```
[Select an option: _2
Append element at the end
```

Option 3:

Main menu:

1. Print the array
2. Append element at the end
3. Remove last element
4. Insert one element
5. Exit

[Select an option: \_3

Remove last element

Option 4:

Main menu:

1. Print the array
2. Append element at the end
3. Remove last element
4. Insert one element
5. Exit

[Select an option: \_4

Insert one element

Option 5:

Main menu:

1. Print the array
2. Append element at the end
3. Remove last element
4. Insert one element
5. Exit

[Select an option: \_5

\*\*\* glibc detected \*\*\* ./prelab1: double free or corruption (fasttop): 0x000120a0 \*\*\*  
Aborted

Error case:

Main menu:

1. Print the array
2. Append element at the end
3. Remove last element
4. Insert one element
5. Exit

[Select an option: \_1

Error: please enter a valid option

## Whole test suite:

```
[root@de1soclinux:~/Labs/Lab1/Prelab1# g++ -o prelab1 main.cpp
[root@de1soclinux:~/Labs/Lab1/Prelab1# ./prelab1
Main menu:
1. Print the array
2. Append element at the end
3. Remove last element
4. Insert one element
5. Exit
[Select an option: _1
Print the array
Main menu:
1. Print the array
2. Append element at the end
3. Remove last element
4. Insert one element
5. Exit
[Select an option: _2
Append element at the end
Main menu:
1. Print the array
2. Append element at the end
3. Remove last element
4. Insert one element
5. Exit
[Select an option: _3
Remove last element
Main menu:
1. Print the array
2. Append element at the end
3. Remove last element
4. Insert one element
5. Exit
[Select an option: _4
Insert one element
Main menu:
1. Print the array
2. Append element at the end
3. Remove last element
4. Insert one element
5. Exit
[Select an option: _1
Error: please enter a valid option
Main menu:
1. Print the array
2. Append element at the end
3. Remove last element
4. Insert one element
5. Exit
[Select an option: _5
*** glibc detected *** ./prelab1: double free or corruption (fasttop): 0x000120a0 ***
Aborted
root@de1soclinux:~/Labs/Lab1/Prelab1#
```

Levi Kaplan EECE2160	Embedded Design: Enabling Robotics Prelab Assignment 1
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