

## CLASSWORK APPLICATIONS FOR VECTORS

**Q1.** Write a program to input integer numbers up to a negative integer number. The program should give the difference between maximum and minimum integers in the list.

```
1  #include<iostream>
2  #include<vector>
3  using namespace std;
4  int main(){
5      vector<int> a;
6      int n,max=0,min=1;
7
8      while(true){
9          cout<<"Enter the element of vector:\n";
10         cin>>n;
11         if(n<0) break;
12         else a.push_back(n);
13         if(max<n) max=n;
14         if(min>n) min=n;
15     }
16
17     cout<<max<<"-"<<min<<"="<<max-min;
18 }
```

**Q2.** Revise the previous program to find how many numbers in the list can be exactly divided by 3. The program also displays these numbers.

```

1  #include<iostream>
2  #include<vector>
3  using namespace std;
4  int main(){
5      vector<int> a;
6      vector<int> b;
7      int n, counter=0;
8
9      while(true){
10         cout<<"Enter the element of vector:\n";
11         cin>>n;
12         if(n<0) break;
13         a.push_back(n);
14     }
15     for(unsigned int i=0; i<a.size(); i++){
16         if(a[i]%3==0) {
17             b.push_back(a[i]);
18             counter++;
19         }
20     }
21     cout<<"There are "<<b.size()<<" numbers can be divided by three:\n";
22     for(unsigned int i=0; i<b.size(); i++){
23         cout<<b[i]<<endl;
24     }
25 }

```

**Q3.** Write a program that inputs positive and negative integer numbers up to zero input. Then the program collects positive and negative numbers in the different vectors. The program should display how many positive and negative numbers.

```

1  #include<iostream>
2  #include<vector>
3  using namespace std;
4  int main(){
5      vector<int> positive;
6      vector<int> negative;
7      int n;
8
9      while(true){
10         cout<<"Enter the element of vector:\n";
11         cin>>n;
12         if(n==0) break;
13         else if (n>0) positive.push_back(n);
14         else negative.push_back(n);
15     }
16     cout<<"There are "<<positive.size()<<" positive numbers and\n";
17     cout<<"There are "<<negative.size()<<" negative numbers.\n";
18 }

```

**Q4.** Write a C++ program to calculate the average of double numbers that is entered by user during execution of the program. Store them to a vector.

(Hint: The user must stop to enter new number whenever he/she wants.)

```
1  #include<iostream>
2  #include<vector>
3  using namespace std;
4  int main(){
5      vector<int> a;
6      double num,sum=0;
7      char ans;
8      while(true){
9          cout<<"Enter the element of vector:\n";
10         cin>>num;
11         a.push_back(num);
12         sum=sum+num;
13         cout<<"New number?: y / n"<<endl;
14         cin>>ans;
15         if(ans=='n') break;
16     }
17     cout<<"Average of "<<a.size()<<" number is "<<sum/a.size();
18 }
```