Assignment 3, 2020-10-01, *Estimated time: 12 minutes*

Question (Vector Operations)
The data structure `std::vector` supports operation `push_back(elt)` (append `elt` to the end of the vector), `pop_back()` (delete the last element), and `at(i)` (return the element at the i-th position of the vector.

File1.cpp

```
1  #include <iostream>
2  #include <vector>
3
4  using namespace std;
5  void VECTOR_PRINT(vector<int> v) {
6      vector<int>::iterator i;
7      for (i = v.begin(); i != v.end(); ++i)
8          cout << (*i) << ".";
9      cout << endl;
10 }
11
12 int main() {
13     // 3 digits from your student ID
14     int a, b, c;
15     cin >> a >> b >> c;
16     vector<int> vv;
17     vv.push_back(9);
18     vv.push_back(7);
19     vv.push_back(c);
20     VECTOR_PRINT(vv);
21     vv.push_back(vv.at(2));
22     vv.push_back(vv.at(1));
23     VECTOR_PRINT(vv);
24     vv.pop_back();
25     vv.push_back(b);
26     vv.push_back(a);
27     vv.pop_back();
28     VECTOR_PRINT(vv);
29     return 0;
30 }
```

Assume that somebody runs this program, and uses numbers `a, b, c` that are the last three digits from your Student ID number. For example, this Student ID:

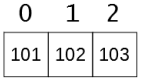
191RDB876

has `a=8`, `b=7`, `c=6`.

Function `VECTOR_PRINT(...)` is called three times in this code (Lines 20, 23 and 28). Draw the state of the `vector` data structure at these three moments in time.

```
vector<int> vv;
vv.push_back(101);
vv.push_back(102);
vv.push_back(103);
```

For example, the above code fragment would create vector state shown in the Figure below:



(A) The state of vector `vv` on Line 20:

(B) The state of vector `vv` on on Line 23:

(C) The state of vector `vv` on on Line 28: