# CSI 201
# Using vectors and randomness!

1. Write some code to 1) Get user input for a seed, 2) seed the random number generator (RNG), and 3) Fill a vector of size 20 with random 0s and 1s

2. The solution to the previous prompt might look something like the following:

```cpp
#include <iostream>
#include <cstdlib>
#include <vector>
using namespace std;
int main() {
  int user_seed;
  cin >> user_seed;
  srand(user_seed);
  vector<int> myrands;
  for(int i = 0; i < 20; ++i) {
     myrands.push_back( rand() % 2 );
  }
}
```

3. Make a vector of strings. Fill it you with X's and O's using randomness. Count how many X's are in the whole vector and output this number.

4. Walk through your vector with 1's and 0's. At each index, output the count of the number of 1's at that index, plus the previous index, plus the last index. Allow things to loop around. If your loop involves index i, you will use indices: `i` for the current element, `(i+1)%size` for the next element and `(i-1+size)%size` for the last element. In each case, size should be the size of your vector. The output at each element should be 0, 1, 2, or 3 corresponding to how many 1s that element and its neighbors might have.

5. Now repeat the last step, but do it with the vector of X's and O's. Output the number of X's at a particular element including its neighbors! (Outputs should be 0, 1, 2 or 3!)