Lab 10 - Map & HashTable Problems

Direction: Submit typed work in the Labs directory of your github repositor or dropbox, or upload to the google classroom assignment. Each part will have a template file provided named `"lab10A.cpp"` and `"lab10B.cpp"` respectively. Submit your modifications of the templates. Including any additional libraries will result in a 0.

Part A: In class

Your objective is to write the definition of the function `DuplicateSum()` whose header is

```
int DuplicateSum(Vector<int>& data)
```

It returns the sum of all the values in *data* that are repeated. For instance, if *data* equals $[1, 2, 2, 3, 2, 4, 1]$, the function will return 3 (1 + 2).

Part B: Take home

Your objective is to write the definition of the function `TwoSum()` whose header is

```
bool TwoSum(Vector<ulong>& data,ulong target)
```

Given that *target* is less than 1000, the function returns true if there exists two elements of *data* whose values sum to *target* in a linear Big-O runtime. If *target* is greater than or equal to 1000, *data* has at most 1 element, or there are no two elements in *data* whose values sum to *target*, the function returns false.