Code Jam 2008 - Round 1C

Analysis: Text Messaging Outrage

This was the one of the easiest problems of Round 1. We simply need to fill the cell phone keyboard greedily. We put the **K** most frequent letters in the first positions of the **K** keys, the next **K** most frequent letters in the second positions, and so on. Any optimal solution will have this structure because if it does not, then it can be improved by swapping a more frequent character from a higher indexed position of some key with a less frequent character from a lower indexed position, thus decreasing the number of key presses.

Here is code that implements this solution:

```
long long A[1000];

int main() {
  int N;
  cin >> N;
  for(int t = 1; t <= N; t++) {
    long long result = 0;
    int P, K, L;
    cin >> P >> K >> L;
    for(int i = 0; i < L; i++) cin >> A[i];
    sort(A, A+L);
    reverse(A, A+L);

    for(int i = 0; i < L; i++)
      result += (1 + i / K) * A[i];

    cout << "Case #" << t << ": " << result << endl;
  }
}
```