```
1 Slow code:
for(int i = 0;i<M;i++){</pre>
  cin >> p[i] >> S[i];
  if(S[i] == "AC")is_ac[p[i]] = 1;}
for(int i = 0;i<M;i++){</pre>
  if(S[i]== "AC"&&!ac_check[p[i]]){
    ac_check[p[i]] = 1;ac++;
  if(S[i]== "WA"&&!ac_check[p[i]]&&is_ac[p[i]]){
    wa++;}
}
2 Optimized code 1 in iteration 2:
unordered_map<int, pair<bool, bool>> problems;
for (int i = 0; i < M; i++) {</pre>
   cin >> p >> S;
  if (S == "AC") {
    problems[p].first = true;ac++;
    if (problems[p].second) wa++;
  } else if (S == "WA") {
    problems[p].second = true;
}
③ Optimized code 2 in iteration 3:
unordered_map<int, pair<bool, bool>> problems;
for (int i = 0; i < M; i++) {
  cin >> p >> S;
  if (problems[p].first) continue;
  if (S == "AC") {
    problems[p].first = true;ac++;
    if (problems[p].second) wa++;
  } else if (S == "WA") {
    problems[p].second = true;
```