Contestant.H

--------------------------------------------------------------------------

|  |
| --- |
| #ifndef \_Contestant\_h\_ |
|  | #define \_Contestant\_h\_ |
|  |  |
|  | #include <string> |
|  |  |
|  | using namespace std; |
|  |  |
|  | struct Contestant { |
|  | string name; |
|  | Contestant\* next; |
|  | Contestant(string); |
|  | }; |
|  |  |
|  | class JosephusCircle { |
|  | private: |
|  | Contestant\* head; |
|  | Contestant\* tail; |
|  | void add(string); |
|  | bool josephusActivated; |
|  | public: |
|  | JosephusCircle(); |
|  | void josephus(int, string, int, int); |
|  | }; |
|  | #endif  .CPP  --------------------------------------------   |  | | --- | | #include <iostream> | |  | #include <fstream> | |  |  | |  | #include "JosephusCircle.h" | |  |  | |  | using namespace std; | |  |  | |  | Contestant::Contestant(string n) { | |  | name = n; | |  | next = nullptr; | |  | } | |  |  | |  | JosephusCircle::JosephusCircle() { | |  | head = nullptr; | |  | tail = nullptr; | |  | josephusActivated = false; | |  | } | |  |  | |  | void JosephusCircle::add(string name) { | |  | Contestant\* newEntry = new Contestant(name); | |  | if (head == nullptr) { | |  | head = newEntry; | |  | tail = newEntry; | |  | head->next = tail; | |  | tail->next = head; | |  | } | |  | else { | |  | tail->next = newEntry; | |  | tail = newEntry; | |  | newEntry->next = head; | |  | } | |  | } | |  |  | |  | void JosephusCircle::josephus(int n, string file, int start, int k) { | |  | josephusActivated = true; | |  | ifstream fin; | |  | fin.open(file); | |  | string input, title; | |  | int i = 0; | |  | while (fin >> input && i < n) { | |  | add(input); | |  | i += 1; | |  | } | |  |  | |  | if (head->next != head) { | |  | Contestant\* curr = head; | |  | Contestant\* prev = tail; | |  |  | |  | i = 1; | |  | while (i < start) { | |  | prev = curr; | |  | curr = curr->next; | |  | i += 1; | |  | } | |  |  | |  | while (curr->next != curr) { | |  | int kcount = 0; | |  |  | |  | while (kcount != k) { | |  | prev = curr; | |  | curr = curr->next; | |  | kcount += 1; | |  | } | |  |  | |  | title = curr->name; | |  | prev->next = curr->next; | |  | cout << title << " was eliminated! 💀" << endl; | |  | delete curr; | |  | curr = prev->next; | |  | } | |  | delete curr; | |  | cout << curr->name << " wins! 😈" << endl; | |  | } | |  | }  MAIN.CPP   |  | | --- | | #include <iostream> | |  |  | |  | #include "JosephusCircle.h" | |  |  | |  | using namespace std; | |  |  | |  | int main() { | |  | JosephusCircle list = JosephusCircle(); | |  | string fileName; | |  | int numContestants, startIndex, skip; | |  | cout << "Number of contestants: "; | |  | cin >> numContestants; | |  | cout << "Starting position: "; | |  | cin >> startIndex; | |  | cout << "Number to skip: "; | |  | cin >> skip; | |  | cout << "Enter file name: "; | |  | cin >> fileName; | |  | list.josephus(numContestants, fileName, startIndex, skip); | |  | } | | |