

Name : Shihu

Reg No. : 2020CA089

```
#include <iostream>
#include <map>
#include <random>
```

```
std::default_random_engine generator;
std::uniform_int_distribution<int> dice(1, 6);
int rollDice() (
    return dice(generator);
```

```
const bool sixesThrowAgain=true;
const std::map<int, int> snl(
    (4, 14},
    (9, 31},
    (17, 7},
    (20, 38},
    (28, 84},
    (40, 59},
    (51, 67},
    {54,34},
    (62, 19},
    (63, 81},
    (64, 60},
    (71, 91},
    (87, 24},
    (93, 73},
    (95, 75},
    (99, 78},
```

```
// taken from https://stackoverflow.com/a/2333816
template <template<class, class, class...> class C, typename K, typename V, typename...
>>' 8>
V GetWithDef(const C<K, V, Args...>& m, K const& key, const V & defval) {
    typename C<K, V, Args...>::const_iterator it=m.find(key);
    if(it == m.end())
        return defval;
    return it->second;
```

```
int turn(int player, int square) (
    while (true) (
        int roll = rollDice();
        printf("Player %d, on square %d, rolls a %d", player, square, roll);
        if(square + roll > 100) {
            printf(" but cannot move.\n");
        } else (
            square += roll;
            printf(" and moves to square %d\n", square);
            if(square == 100) return 100;
            int next=GetWithDef(snl, square, square);
            if(square < next) {
                printf("Yay! Landed on a ladder. Climb up to %d.\n", next);
                square = next;
            } else if(next < square) (
                printf("Oops! landed on a snake. Slither down to %d.\n", next);
                square = next;
```

```
        if(roll < 6 || !sixesThrowAgain)return square;
        printf("Rolled a 6 so roll again.\n");
```

```
int main() (
    // three players starting on square one
    int players[] = ( 1, 1, 1 );
```

```
while (true) (  
    for (int i = 0; i < sizeof(players) / sizeof(int); ++i) (  
        int ns = turn(i + 1, players[i]);  
        if(ns == 100) {  
            printf("Player %d wins!\n", i + 1);  
            goto out;  
  
            players[i] = ns;  
            printf("\n");  

```

```
out:  
    return 0;
```