

"Champion of Potion"

When you were a kid, you might have seen the wizard making potion (A potion is a liquid "that contains medicine, poison, or something that is supposed to have magic powers.") in some cartoons. Have a look below.



Now let's take a scenario where there are 5 wizards and there is a potion in the middle. All of them are revolving round the potion and with the passage of time one of them is randomly and magically eliminated. This process continues until only one wizard remains and that will be the winner. That winner can drink the potion.

- You will simulate this game using a single circular linked list data structure in C++. Each wizard participating in the game will be represented as a node in the single circular linked list. The linked list will be circular to simulate the continuous movement of wizards around the potion.
- Now actually you have to simulate this by creating 5 nodes initializing the list with the names of the wizards (hard coded using call to insert method).
- In the main menu you have two choices. Traverse the wizards one by one, and start game.
- **Traverse the wizards one by one:** Straight forwardly display the names in the list one by one, according to the user choice. See sample output.
- **Start game:** Start the game, and then in each round you will generate a random no between 1 to current length of the list, and the node (wizard) at the

position will be removed from the list. Note in each round, display the random no generated, wizard who is removed, and also display the current wizards in the game. In the end show the winner.

```
1. Traverse Wizards one by one
2. Start game
3. Exit
1
Creepy Carol
Show:
1. Next
2. Go to main menu
1
Spooky Sophia
Show:
1. Next
2. Go to main menu
1
Grim the Dark
Show:
1. Next
2. Go to main menu
1
Gothic Queen
Show:
1. Next
2. Go to main menu
1
Ghostly Bella
Show:
1. Next
2. Go to main menu
1
Creepy Carol
Show:
1. Next
2. Go to main menu
2
1. Traverse Wizards one by one
2. Start game
3. Exit
2
Current Wizards:
1). Creepy Carol
2). Spooky Sophia
3). Grim the Dark
4). Gothic Queen
5). Ghostly Bella
```

Random no: 2
Spooky Sophia removed from the game
Current Wizards:
1). Creepy Carol
2). Grim the Dark
3). Gothic Queen
4). Ghostly Bella

Random no: 4
Ghostly Bella removed from the game
Current Wizards:
1). Creepy Carol
2). Grim the Dark
3). Gothic Queen

Random no: 2
Grim the Dark removed from the game
Current Wizards:
1). Creepy Carol
2). Gothic Queen

Random no: 1
Creepy Carol removed from the game
Winner is: Now Gothic Queen
will now drink the potion
1. Traverse Wizards one by one
2. Start game
3. Exit

“Cave Escape”

As a cave explorer you are going to enter in a dark cave like below, containing mummies.



Design a stack-based escape plan for an adventurer (You). The adventurer enters the cave and moves forward. He uses a stack to mark his path as he explores the cave. He must push the current location in the stack before moving forward, so that when he sees a mummy, he can go back to these points so that he does not get lost and find their way back to the exit. Implement stack using linked list.

```
Welcome to the cave
Must put your location info in a stack so that you can go back whenever you see a mummy
Enter a choice:
1. Go forward in the cave
2. Go back
3. Run from the cave.... I saw the mummy
1
Mark your current location, so that you can go back
Enter the name of the current location:
A
Enter a choice:
1. Go forward in the cave
2. Go back
3. Run from the cave.... I saw the mummy
1
Mark your current location, so that you can go back
Enter the name of the current location:
B
Enter a choice:
1. Go forward in the cave
2. Go back
3. Run from the cave.... I saw the mummy
1
Mark your current location, so that you can go back
Enter the name of the current location:
C
Enter a choice:
1. Go forward in the cave
2. Go back
3. Run from the cave.... I saw the mummy
1
Mark your current location, so that you can go back
Enter the name of the current location:
D
Enter a choice:
1. Go forward in the cave
2. Go back
3. Run from the cave.... I saw the mummy
2
You are now at: D
Enter a choice:
1. Go forward in the cave
2. Go back
3. Run from the cave.... I saw the mummy
2
You are now at: C
```

```
Enter a choice:
1. Go forward in the cave
2. Go back
3. Run from the cave.... I saw the mummy
1
Mark your current location, so that you can go back
Enter the name of the current location:
E
Enter a choice:
1. Go forward in the cave
2. Go back
3. Run from the cave.... I saw the mummy
1
Mark your current location, so that you can go back
Enter the name of the current location:
F
Enter a choice:
1. Go forward in the cave
2. Go back
3. Run from the cave.... I saw the mummy
3
You are now at: F
You are now at: E
You are now at: B
You are now at: A
You successfully ran away from the cave
```

```
Welcome to the cave
Must put your location info in a stack so that you can go back whenever you see a mummy
Enter a choice:
1. Go forward in the cave
2. Go back
3. Run from the cave.... I saw the mummy
2
You have not even entered the cave
```