

Procedural Programming Laboratory

Project

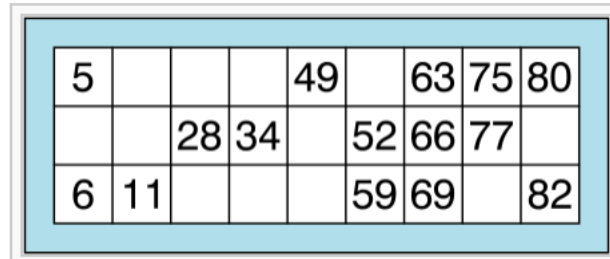
Your project is to write a program that allows the management of a Galway Bingo Ltd to predict and verify the winners of the weekly bingo. Each week there are between 2 and 6 people playing bingo.

The program should also allow the Galway Bingo Ltd Manager to save a game's status at any time, reload an old game from a list of multiple saved games or create a new game.

Bingo Rules and Configuration

A typical bingo ticket is shown in figure 1. It contains 27 spaces, arranged in nine columns by three rows. Each row contains five numbers and four blank spaces. Each column contains up to three numbers, which are arranged as follows:

1. The first column contains numbers from 1 to 10,
2. The second column numbers from 11 to 20,
3. The third, 21 to 30 and so on up until the last column, which contains numbers from 81 to 90.



5				49		63	75	80
		28	34		52	66	77	
6	11				59	69		82

Figure 1: Player Card

How Bingo Works

The game is presided over by a caller, whose job it is to call out the numbers and validate winning tickets.

The caller will then usually say "Eyes down" to indicate that he is about to start. They then begin to call numbers as they are randomly selected, either by an electronic random number generator (RNG), by drawing counters from a bag or by using balls in a mechanical draw machine.

As each number is called, players check to see if that number appears on their tickets. They may mark the number by putting a cross through the number in pen or pencil. When all the numbers required

to win a prize have been marked off, the player shouts in order to attract the caller's attention.

The different winning combinations are:

1. Four corners - the leftmost and rightmost numbers on the top and bottom lines.
2. Line – covering a horizontal line of five numbers on the ticket.
3. Two Lines – covering any two lines on the same ticket.
4. Full House – covering all fifteen numbers on the ticket.

How the Program should operate:

Every time a new game is created the program should ask the Manager how many players are playing and the player's cards should then be randomly generated.

If a saved game is loaded then the program should display the current status of the game.

Once the game is loaded the users should be presented with a number of options:

- Draw the next number (Note: A number can only be drawn once in each game).
 - This option will be disabled once a full house has been achieved.
- Save the game
- Output the game's status
 - This option should show:
 - All the numbers that have been drawn
 - How many numbers each user requires to complete each of the four winning combinations.
- Exit the game without saving
 - Selecting this option exits the game but you are then given the following options:
 - Open a new game
 - Open a previously saved game
 - Exit the application

Project Submission

Each student should submit the code developed to support the game of Bingo. In addition to the code each student should submit a document explaining the various design decisions that were made during the project and how their code works.

Submission Deadline

Project Submissions to be submitted to martin.hynes@gmit.ie by 5pm on the 5th January 2017

Points to Note

- Comments expected.
- Good programming practice is expected

- Ensure that any files that are needed to run the program are included in your submission.
- Your code has to run. Serious deduction of marks will occur for code that is not running correctly.
- Plagiarism is not acceptable.
- You will be asked to present your code/application.