

CS 1341 - Lab 5 Assignment

Graduate from SMU Game

Pre-Lab (5 Points)



Create a class named *Graduate.java* with the following three method headers:

```
public static void main(String[] args)  
public static boolean rollDoubles()  
public static boolean attemptPassingGrade()
```

Just create the class and method headers with their corresponding blocks (no method content is required for the pre-lab) and bring to the beginning of your lab class for credit.

The Pre-Lab is due at the beginning of your lab class 3/7-3/11/2022

Lab (95 Points)

Create the "Graduate from SMU" game with one class (*Graduate*) and three methods (*main*, *rollDoubles*, and *attemptPassingGrade*.) Follow the instructions in the following pages to ensure the logic works correctly and test it to ensure it produces similar results to those provided in the instructions.

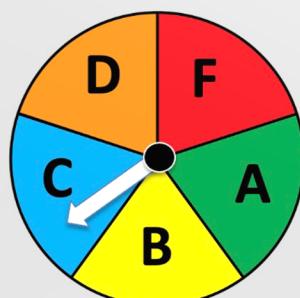
The Lab is due in Canvas Saturday March 26, 2022 at 6:00am.

NOTE THE ADDITIONAL WEEK ON THIS ASSIGNMENT DUE TO SPRING BREAK

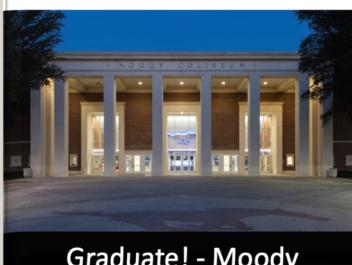
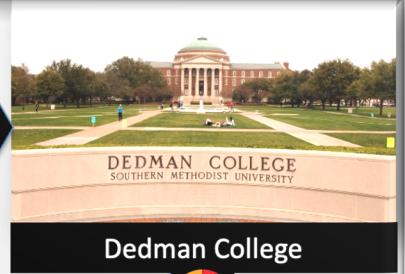
Note: Sharing these instructions with anyone other than an SMU CS Teaching Assistant or Senior Mentor, or ALEC tutor (or another tutor pre-approved by your instructor), posting on any website, or submission of any part of a solution that was created by anyone other than you constitutes an SMU honor code violation.

Game Overview:

Two players alternate turns attempting to get admitted to SMU then getting a passing grade in each of SMU's five undergraduate schools. Each player must roll doubles on a pair of dice to get admitted to the first school, then must spin a passing grade (A, B or C) in each school to pass to the next. Players only get one roll or spin per turn. Players continue to alternate turns until the first player wins by passing from Lyle to Moody for graduation.



Get a passing grade (A,B or C)
to move to the next school.



Class: Graduate

Static variables: Declare static variables containing a Scanner and Random object to use in all methods of the class.

Method: *main*

Returns: *void*

Parameters: String[] (Standard main method signature)

Variables:

- String array containing names of Admissions, the six schools, and Moody
- String array of size 2 to contain both player names
- int array of size 2 to contain the current location of each player, starting at location 0.

Logic:

Prompt the user to enter each of the player's names and put them in the players array

Game loop – repeat until game ends by someone reaching the last location (Moody)

Round loop – repeat for each of the players

Print player name and the name of the location the player is currently located at.

If current player is at location 0, call the rollDoubles method, which returns a boolean

if rollDoubles returns true, add 1 to this player's location and print a message stating the player has been enrolled in the first school.

if rollDoubles returns false, this player's turn is over. Print a message stating that the player is stuck at Admissions and the outer (round loop) continues with the next player.

if current player is at a location greater than 0, print a message with the player's name and name of the current location stating that they are attempting a passing grade, then call the attemptPassingGrade method.

if attemptPassingGrade returns true, add 1 to this player's location.

if attemptPassingGrade returns false, this player's turn is over, and the outer (round loop) continues with the next player.

If the current player's location is now 6, print a message stating that this player has graduated (won the game) then break out of both the round loop and game loop.

Class: Graduate (continued)

Method: *rollDoubles*
Returns: *boolean*
Parameters: n/a

This is a modification to
the *rollDoubles method*
in Lab 4

Variables:

- Create any variables needed to fulfill requirements of this method

Logic:

Use the Random (static variable in this class) to roll two dice.
Use Scanner ((static variable in this class) to prompt the user to press Enter/Return to roll
Print the rolled die values
If the die values match, print "doubles!!" and return **true**
If the die values don't match, return **false**

Method: *attemptPassingGrade*
Returns: *boolean*
Parameters: n/a

This is a modification to
the *spinACompliment*
method in Lab 4

Variables:

- String array containing the five possible grade values – A, B, C, D and F

Logic:

Use the Random (static variable in this class) to spin the grade wheel
Use Scanner ((static variable in this class) to prompt the user to press Enter/Return to spin
If the randomly selected grade is A, B, or C, print "Passed" with the grade and return **true**
If the randomly selected grade is D or F, print "Didn't Pass " with the grade and return **false**

Grading Rubric:

Each program should include comments that explain what each block of code is doing. Additionally, the programs should compile without errors, and run with the results described in the exercise. The following deductions will be made if any of the following is incorrect or missing:

- Proper formatting [5 points]
- Proper names for classes and variables [5 points]
- Comments [5 point]
- Program doesn't compile [10 points]
- Source code (java file) missing [10 points]
- Executable (class file) missing [10 points]
- Missing array where an array was required [5 points]
- Missing loop where a loop was required [5 points]
- Missing class from the design provided [10 points]
- Missing method from the design provided [5 points]

Sample Run 1

```
>java Graduate
```

```
Welcome to the Graduate from SMU Game!
```

```
Enter player 1 name: Homer
Enter player 2 name: Marge
Homer's turn. Currently at Admissions
Press Enter to roll the dice...
Rolled 4 and 4 - doubles!!
Homer is enrolled at the first school!
Marge's turn. Currently at Admissions
Press Enter to roll the dice...
Rolled 5 and 3 - Marge is stuck at Admissions.
Homer's turn. Currently at Cox
Homer is attempting a passing grade at Cox
Press Enter to spin the grade wheel...
Passed - grade C!
Marge's turn. Currently at Admissions
Press Enter to roll the dice...
Rolled 5 and 3 - Marge is stuck at Admissions.
Homer's turn. Currently at Dedman
Homer is attempting a passing grade at Dedman
Press Enter to spin the grade wheel...
Passed - grade C!
Marge's turn. Currently at Admissions
Press Enter to roll the dice...
Rolled 6 and 5 - Marge is stuck at Admissions.
Homer's turn. Currently at Simmons
Homer is attempting a passing grade at Simmons
Press Enter to spin the grade wheel...
Passed - grade A!
Marge's turn. Currently at Admissions
Press Enter to roll the dice...
Rolled 2 and 4 - Marge is stuck at Admissions.
Homer's turn. Currently at Meadows
Homer is attempting a passing grade at Meadows
Press Enter to spin the grade wheel...
Passed - grade C!
Marge's turn. Currently at Admissions
Press Enter to roll the dice...
Rolled 2 and 1 - Marge is stuck at Admissions.
Homer's turn. Currently at Lyle
Homer is attempting a passing grade at Lyle
Press Enter to spin the grade wheel...
Passed - grade B!
Homer graduated! Game over.
```

Sample Run 2

```
> java Graduate
```

```
Welcome to the Graduate from SMU Game!
```

```
Enter player 1 name: Wilma
Enter player 2 name: Fred
Wilma's turn. Currently at Admissions
Press Enter to roll the dice...
Rolled 3 and 4 - Wilma is stuck at Admissions.
Fred's turn. Currently at Admissions
Press Enter to roll the dice...
Rolled 5 and 3 - Fred is stuck at Admissions.
Wilma's turn. Currently at Admissions
Press Enter to roll the dice...
Rolled 2 and 1 - Wilma is stuck at Admissions.
Fred's turn. Currently at Admissions
Press Enter to roll the dice...
Rolled 6 and 6 - doubles!!
Fred is enrolled at the first school!
Wilma's turn. Currently at Admissions
Press Enter to roll the dice...
Rolled 5 and 5 - doubles!!
Wilma is enrolled at the first school!
Fred's turn. Currently at Cox
Fred is attempting a passing grade at Cox
Press Enter to spin the grade wheel...
Didn't pass - grade: F.
Wilma's turn. Currently at Cox
Wilma is attempting a passing grade at Cox
Press Enter to spin the grade wheel...
Didn't pass - grade: D.
Fred's turn. Currently at Cox
Fred is attempting a passing grade at Cox
Press Enter to spin the grade wheel...
Didn't pass - grade: D.
Wilma's turn. Currently at Cox
Wilma is attempting a passing grade at Cox
Press Enter to spin the grade wheel...
Didn't pass - grade: F.
Fred's turn. Currently at Cox
Fred is attempting a passing grade at Cox
Press Enter to spin the grade wheel...
Didn't pass - grade: F.
Wilma's turn. Currently at Cox
Wilma is attempting a passing grade at Cox
Press Enter to spin the grade wheel...
Passed - grade B!
Fred's turn. Currently at Cox
Fred is attempting a passing grade at Cox
Press Enter to spin the grade wheel...
Didn't pass - grade: D.
Wilma's turn. Currently at Dedman
Wilma is attempting a passing grade at Dedman
Press Enter to spin the grade wheel...
Didn't pass - grade: F.
Fred's turn. Currently at Cox
Fred is attempting a passing grade at Cox
Press Enter to spin the grade wheel...
Didn't pass - grade: F.
Wilma's turn. Currently at Dedman
Wilma is attempting a passing grade at Dedman
Press Enter to spin the grade wheel...
Passed - grade A!
Fred's turn. Currently at Cox
Fred is attempting a passing grade at Cox
Press Enter to spin the grade wheel...
Didn't pass - grade: F.
```

```
Wilma's turn. Currently at Simmons
Wilma is attempting a passing grade at Simmons
Press Enter to spin the grade wheel...
Passed - grade A!
Fred's turn. Currently at Cox
Fred is attempting a passing grade at Cox
Press Enter to spin the grade wheel...
Passed - grade A!
Wilma's turn. Currently at Meadows
Wilma is attempting a passing grade at Meadows
Press Enter to spin the grade wheel...
Passed - grade B!
Fred's turn. Currently at Dedman
Fred is attempting a passing grade at Dedman
Press Enter to spin the grade wheel...
Passed - grade A!
Wilma's turn. Currently at Lyle
Wilma is attempting a passing grade at Lyle
Press Enter to spin the grade wheel...
Passed - grade C!
Wilma graduated! Game over.
```