LOTTERY SYSTEM

(PROJECT: PROGRAMMING FUNDAMENTALS)

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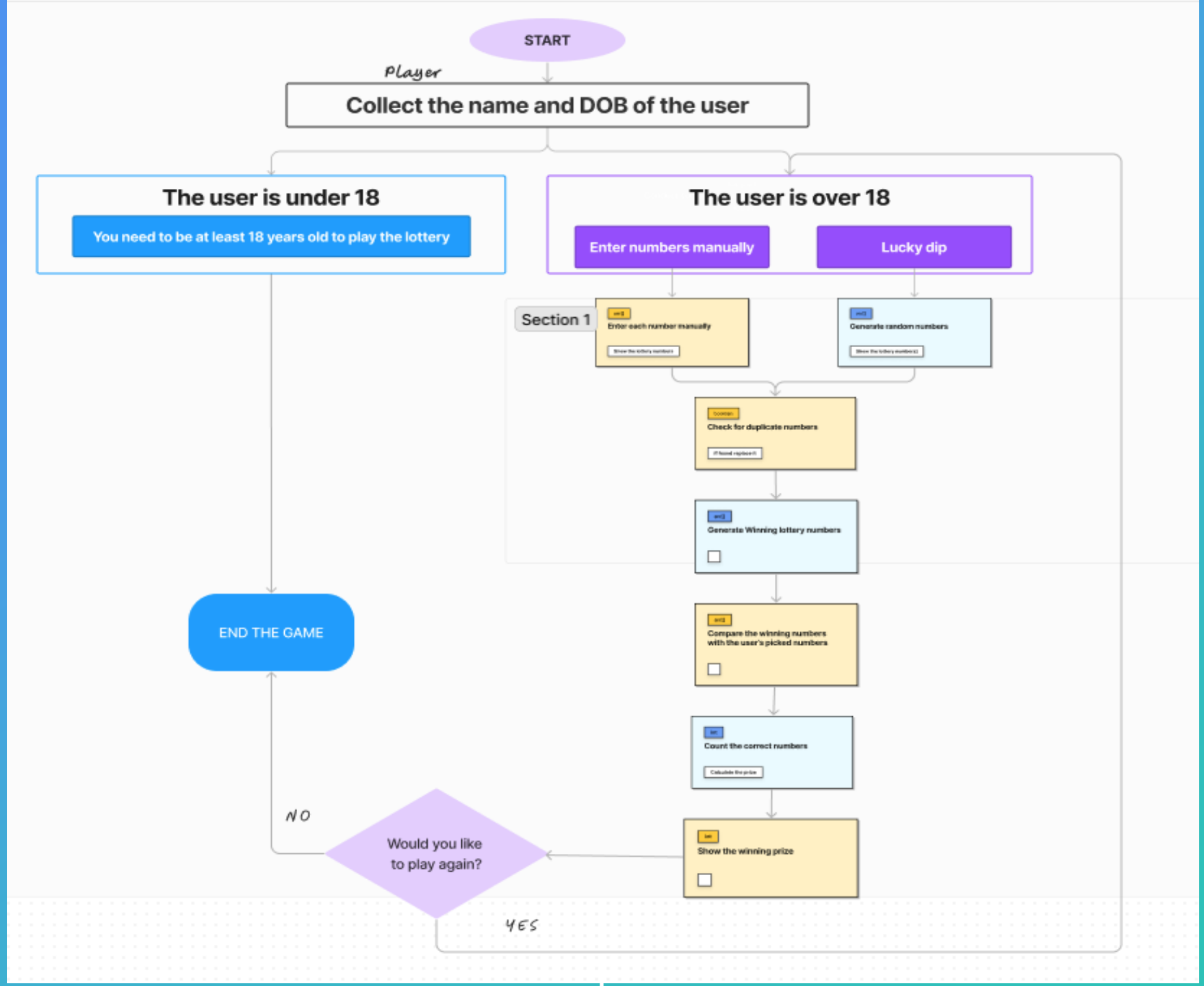
Choosing 6 from 49

- In a typical 6/49 game, each player chooses six distinct numbers from a range of 1–49. If the six numbers on a ticket match the numbers drawn by the lottery, the ticket holder is a jackpot winner—regardless of the order of the numbers.
  The probability of this happening is 1 in 13,983,816


START
Player
Collect the name and DOB of the user
The user is under 18
You need to be at least 18 years old to play the lottery
The user is over 18
Enter numbers manually
Lucky dip
Section 1
Enter each number manually
Generate random numbers
Check for duplicate numbers
Generate Winning lottery numbers
Compare the winning numbers with the user's picked numbers
Count the correct numbers
Show the winning prize
END THE GAME
NO
Would you like to play again?
YES

FR1: Over 18s only!

```
int age = -1;

// the user is asked for their date of birth
in format dd/MM/yyyy to calculate the age
while (age == -1) {
 System.out.println(name + ", please enter
your date of birth (dd/MM/yyyy):");
 String dateOfBirth = scanner.nextLine();

 // step 1: Over 18s only!
 // Check the age of the player after they
input it.
 age = calculateAge(dateOfBirth);

 if (age == -1) {
 System.out.println("Please enter a valid
date.");
 }
}

System.out.println("Your age: " + age);
```

```
public static int calculateAge(String dateOfBirth)
{
 DateTimeFormatter formatter =
DateTimeFormatter.ofPattern("dd/MM/yyyy");

 try {
 LocalDate birthDate = LocalDate.parse(dateOfBirth,
formatter);
 LocalDate currentDate = LocalDate.now();

 if (birthDate.isAfter(currentDate)) {
 System.out.println("Date of birth cannot be in the
future.");
 return -1;
 }
 Period age = Period.between(birthDate,
currentDate);
 return age.getYears();
 } catch (DateTimeParseException e) {
 return -1;
 }
}
```

FR2: Pick numbers

Allow the user to pick six numbers for their lottery ticket from the range 1-49. The user should only be able to pick each number once per game. They *must* pick exactly six numbers.

```
public static int[] pickYourNumbers(int[] arr) {
    Scanner scanner = new Scanner(System.in);
    System.out.println("Please choose 6 numbers from the range 1-49.");

    for (int i = 0; i < arr.length; i++) {
        boolean isNumberInRange = false;

        while (!isNumberInRange) {
            System.out.println("Enter lottery number " + (i + 1));
            int number = scanner.nextInt();
            if (checkTheRange(number)) {
                if (checkDuplicateNum(arr, number)) {
                    System.out.println("Number is duplicate. Please try again.");
                } else {
                    arr[i] = number;
                    isNumberInRange = true;
                }
            } else {
                System.out.println("Out of range. Please try again.");
            }
        }
    }
    return arr;
}
```

FR3: Lucky dip

```
public static int[] luckyDip(int[] arr) {
    Random rand = new Random();

    for (int i = 0; i < arr.length; i++) {
        //generates random number
        int number = rand.nextInt(49) + 1;
        //checks if the number is already in array
        while (checkDuplicateNum(arr, number)) {
            //if duplicate found, generate rand number again
            number = rand.nextInt(49) + 1;
        }
        //if no duplicates found, adds the number to an array
        arr[i] = number;
    }
    return arr;
}
```

FR4: View the ticket

- `System.out.println("Your lottery numbers: " + Arrays.toString(arr));`

```
Your lottery numbers: [38, 42, 23, 1, 12, 45]
```

- **check if array already has the same number**

```
public static boolean checkDuplicateNum(int[] arr, int target) {
    for (int i = 0; i < arr.length; i++) {
        if (arr[i] == target) {
            // duplicate found
            return true;
        }
    }
    return false;
}
```

FR5: Play the game

```
w hile (playGame) {
        // resetting the user's and w inning arrays and assigning 0
        arr = resetTheGame(arr);
        w inNumbers = resetTheGame(w inNumbers);
        System.out.println("Please enter how w ould you like to pick the lottery numbers by choosing the corresponding number:");
        System.out.println("1. Enter it manually\n2. Lucky dip (randomly generated)");
        Scanner sc = new Scanner(System.in);
        choice = sc.nextInt();
        w inNumbers = luckyDip(w inNumbers);
        sw itch (choice) {
            case 1:
                // user manually enters the numbers
                arr = pickYourNumbers(arr);
                break;
            case 2:
                //program randomly generates the numbers for the user
                arr = luckyDip(arr);
                break;
            default:
                System.out.println("Try again");
                break;
        }
```

```
while (playGame) {
        // resetting the user's and winning arrays and assigning 0
        arr = resetTheGame(arr);
        winNumbers = resetTheGame(winNumbers);
        System.out.println("Please enter how would you like to pick the lottery numbers by choosing the corresponding number:");
        System.out.println("1. Enter it manually\n2. Lucky dip (randomly generated)");
        Scanner sc = new Scanner(System.in);
        choice = sc.nextInt();
        winNumbers = luckyDip(winNumbers);
        switch (choice) {
            case 1:
                // user manually enters the numbers
                arr = pickYourNumbers(arr);
                break;
            case 2:
                //program randomly generates the numbers for the user
                arr = luckyDip(arr);
                break;
            default:
                System.out.println("Try again");
                break;
        }
```

FR6: Check the ticket

```
public static String priceCheck(int[] arr, int[] winNum) {
        int matchCount = 0;
        String result = "";
        for (int i = 0; i < arr.length; i++) {
            for (int j = 0; j < winNum.length; j++) {
                if (arr[i] == winNum[j]) {
                    matchCount++;
                }
            }
        }
// Alt depressed and numeric keyboard 0163 for £
        if (matchCount <= 1) {
            result = "No Prize";
        }
        if (matchCount == 2) {
            result = "£1";
        }
        if (matchCount == 3) {
            result = "£2";
        }
        if (matchCount == 4) {
            result = "£4";
        }
        if (matchCount == 5) {
            result = "£8";
        }
        if (matchCount == 6) {
            result = "JACKPOT";
        }
//        System.out.println("matches: " + matchCount);

        return result;
    }
```

FR7: Reset and replay

```
public static int[] resetTheGame(int[] arr) {
    arr = new int[arr.length];
    return arr;
}

/-----------------------------------------------------------------------------------------------/
while (playGame) {

    // resetting the user's and winning arrays and assigning 0
    arr = resetTheGame(arr);
    winNumbers = resetTheGame(winNumbers);
```

RESULT OF LUCKY PICK

```
> Task :LotteryGame.main()
Please enter your name:
Dana
Dana, please enter your date of birth (dd/MM/yyyy):
01/01/1955
Your age: 69
The date of the game is: JUNE 11, 2024
Please enter how would you like to pick the lottery numbers by choosing the corresponding number:
1. Enter it manually
2. Lucky dip (randomly generated)
2
Your lottery numbers: [32, 18, 37, 15, 44, 5]
These are winning numbers: [47, 30, 12, 14, 44, 16]
You won: No Prize
Would you like to play again?
1. Yes
2. Exit
2
Goodbye, Dana!
```

RESULT OF MANUAL INPUT

```
Dana
Dana, please enter your date of birth (dd/MM/yyyy):
01/01/1966
Your age: 58
The date of the game is: JUNE 11, 2024
Please enter how would you like to pick the lottery numbers by choosing the correspondi
1. Enter it manually
2. Lucky dip (randomly generated)
1
Please choose 6 numbers from the range 1-49.
Enter lottery number 1
5
Enter lottery number 2
49
Enter lottery number 3
52
Out of range. Please try again.
Enter lottery number 3
5
Number is duplicate. Please try again.
Enter lottery number 3
12
Enter lottery number 4
37
Enter lottery number 5
41
Enter lottery number 6
13
Your lottery numbers: [5, 49, 12, 37, 41, 13]
These are winning numbers: [42, 13, 21, 41, 10, 43]
You won: £1
Would you like to play again?
1. Yes
2. Exit
```