120.050 Introduction to Python programming for geoscience - Exercise 1

Christoph Paulik

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1 Roulette Game

For our first exercise we will implement a simple:

```
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```

If you are not familiar with Roulette please consult the Wikipedia article on the topic. We will be using French Roulette rules meaning that the possible numbers that can come up are from zero to 36. When number zero comes then everybody loses unless they bet on zero.

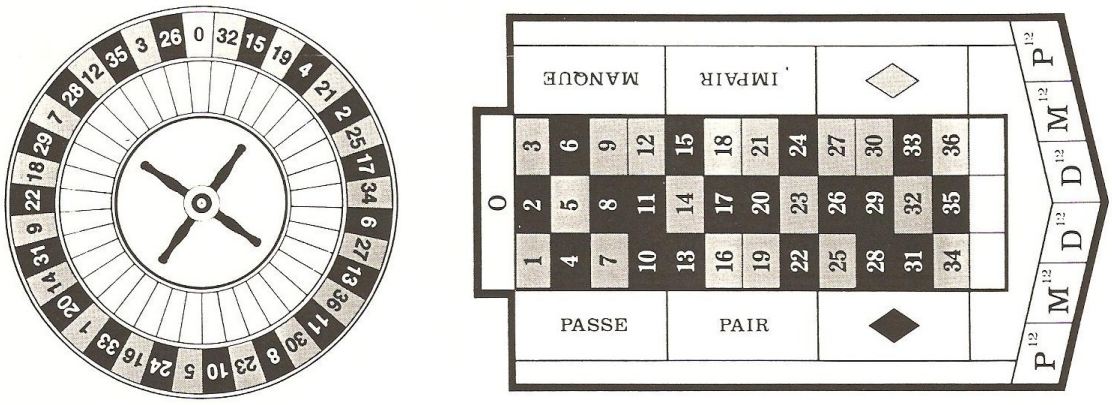

Figure 1: Layout of a French Roulette game from Wikipedia

Since a complete implementation of the game would be too complex we will limit ourselves to these bets taken from Wikipedia:

Straight (or Single) a bet on a single number [35 to 1]

1 to 18 (Manque) a bet on one of the first 18 numbers. [1 to 1]

19 to 36 (Passe) a bet on the high 18 numbers. [1 to 1]

Red or Black (Rouge ou Noir) a bet on which color the roulette wheel will show. [1 to 1]

Even or odd (Pair ou Impair) a bet on even or odd nonzero number. [1 to 1]

Dozen Bets a bet on the first 12 (1-12), second 12 (13-24) or third 12 (25-36) numbers. [2 to 1]

Column Bets a bet on one of the three vertical lines e.g.: 1-4-7-10 ... [2 to 1]

The numbers in [ ] represent the payout of each bet. For example [2 to 1] means that you get 2 times the amount you bet from the bank, e.g.: you bet 1€ on the first dozen numbers; number 7 comes up so you get 2€ from the bank and you have 3€ total.

2 Program Interface

1. The program should start by asking the player for the following information:
   - Name
   - Amount of money they brought to the Roulette table.
2. After that the program should ask for the type of bet the player wants to play (see list above). Show the options to the player. Also include an option to quit the program.
3. When a bet type is selected ask for the bet. Depending on the bet this input will have different meanings so list the possibilities to the player. Make sure the player does not bet more money than she has.
4. "Rotate" the Roulette wheel and show the result to the player. Also show the amount won or lost and the updated amount of money the player has left. Start again at step 2.

3 Python hints

All needed modules and data structures can be found in the Python standard library. A simple functional program is enough. No classes etc. are needed.

3.1 Useful code snippets

```
1 import os
2 os.system('cls' if os.name == 'nt' else 'clear')
```

Listing 1: This snippet clears the screen of a terminal

```
1 num = input("Give me a number: ")
2 print(type(num))
3 num = float(num)
4 print("This is the number you have given me: {:.2f}".format(num))
```

Listing 2: This snippet gets input from the user and converts it into a float number.

4 Hand in

The Exercise will be done in groups of 3 people. Please form the groups in TUWEL.
The following is required when handing in the exercise:

- A short (1-3) pages report explaining what the program is doing, its structure and how the functions and/or modules work together. Somebody reading this document should find it easy to start reading the source code. **No source code** in this document. This can also be a simple README text file.
- **Documented** Python source code.

Hand in of the exercise will also be in TUWEL.

4.1 Due Date

Please hand in the exercise by 2016-11-30.