Main program module of the research

Marian Petruk

May 19 2017

Contents

1 Main purpose of the program and its description

The goal of the main module is to view data from the indicators in a convenient way. When a user runs the program he sees all the available indicators to choose from. Then program asks three questions. The first one is to choose an indicator, more specifically its name (all the names of all indicators were shown before in the beginning, when the program started). The second question asks to choose a year. The user can decide between the year in the range from 1990 to 2017 (some indicators may not have data for each year). The last question allows one to choose the country, namely the ISO code of a country: 'PL' or 'UA'. After all the inputs the user will see the numeric data from the chosen indicator.

2 Input and output data

2.1 The input

There are three inputs.

1. **the indicator**:
   - gdp
   - gdp_per_capita
   - gross_savings
   - inflation_gdp
   - imports
   - inflation_consumer_prices
   - gni
   - total_population
   - life_expectancy
   - high_tech_exports
   - science_tech_articles
2. **the year**:
   - 1990
   - 1991
   - 1992
   - 1993
   - 1994
   - 1995
   - 1996
   - 1997
   - 1998
   - 1999
   - 2000

- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017

3. **the country**:
    - UA
    - PL

If the user input is wrong, for example some typo or the year out of the range, the program will tell that it is wrong and will stop executing.

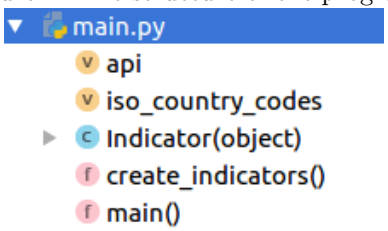
2.2 The output

The **output** of the program is simple:

- the numeric data - the indicator data for the given year of the given country;
- a message that the data is not available - because not all indicators have data for every year;
- an error message - if the input is wrong.

3 Structure of the module

Figure 1: The structure of the program.



3.1 Imports

The program imports **wbpy** - the python api module for the **World Bank API** and the **ADT class** of the Array2D.

3.2 variables

There are two global variables:

- api - the **Indicator API** instance.
- iso_country_codes - the iso country codes: **'UA'** and **'PL'** in this research.

3.3 Classes

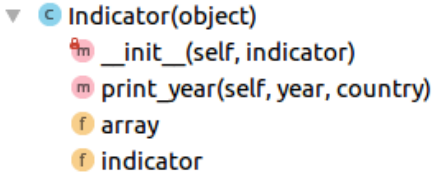
There is only one class, the class for the indicator representation. It has two properties:

- **indicator** - the name of the indicator;
- **array** - the two dimensional array abstract data type that is filled with the data from the indicator.

The class has also two functions:

- **__init__** - for the initialization of the class;
- **print_year(year, country)** - the function which returns a string for printing. The string contains the numeric data from the indicator of the given country for the given year or a message that the indicator does not have the data for the given year.

Figure 2: The structure of the Indicator class.



4 Test cases

4.1 Example of using the program

```
-----Available indicators-----
- gdp
- gdp_per_capita
- gross_savings
- inflation_gdp
- imports
- inflation_consumer_prices
- gni
- total_population
- life_expectancy
- high_tech_exports
- science_tech_articles

Choose the indicator: gdp

Choose the year (1990-2017): 1990

Enter the country (UA, PL): UA

81456918678.5008
```

4.2 Some other test cases

- if the user enters an indicator which does not exist he will see the following message:

```
AssertionError: Sorry, there is no such indicator.
```

- if the user enters a year which is out of the range, he will see the following message:

```
AssertionError: Year must be only in range from 1990 to 2017.
```

- if the user enters a country which is not Ukraine or Poland, he will see the following message:

```
AssertionError: Only PL or UA countries.
```