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COMPUTER PROGRAMMING I - LABORATORY

FINAL PROJECT

17.01.2023

Municipal Services Tracking Program

1 The main purpose of the program is:

provide the order of municipal actions of ARSTOTZKA. The program consists of 3 parts: admin, employee and citizens. Admin is like the mayor. Can add new taxes, citizens or employees. Citizens can report something about municipal services such as education or electrical issues. Employees are responsible for solving the citizens' problems and responding to the reports.

2 Program Objects and Relationships:

2.1 The main purpose of the use of object 'USERS' is:

The superclass of employee, admin and citizen

All people holding in a Users ArrayList. In this way, this object ensures polymorphism

This object has a builder nested class to make it easier to create.

2.2 The main purpose of object 'ADMIN' is:

Indicates that this User is an admin and has high-level privileges.

Consist of required methods for admin features.

This object has a builder nested class to make it easier to create.

2.3 The main purpose of object 'EMPLOYEE' is:

Indicates that this User is an employee and has responsibility for solving reports.

Consist of required methods for employee features.

This object has a builder nested class to make it easier to create.

2.4 The main purpose of object 'CITIZEN' is:

Indicates that this User is a citizen and can create new reports.

Consist of required methods for citizen features.

This object has a builder nested class to make it easier to create.

2.5 The main purpose of object 'DATABASE' is:

Keeps all users' information, reports and taxes.

Works like a database.

Most functions work in the Database class to ensure privacy.

2.6 The main purpose of object 'REPORT' is:

When citizens report something, this object is generated.

Keeps information about reporter, report date, responsible employee etc.

This object has a builder nested class to make it easier to create.

2.7 The main purpose of object 'REPORTMATCHER' is:

Matches the created reports with suitable employees.

Gives unique ids for created reports.

2.8 The main purpose of object 'TAX' is:

When the admin creates a new tax, this object is generated for every citizen.

Keeps information about tax name and amount and payment status.

This object has a builder nested class to make it easier to create.

2.9 The main purpose of object 'GLORYTOARSTOTZKA' is:

Works as a test class. Provide a simple console user interface.

3 Complex Rules:

- Admin can create new taxes and select a price for them. When a new tax is added, its object will also be created for every citizen.
- Admin can add a new employee or citizen. When citizens or employees are created, their ID numbers are generated automatically and cannot be changed anymore. And the id number must have 11 digits. When generating an employee, the admin selects its job("ENGINEER, EDUCATOR, ENVIRONMENT_SPECIALIST, GENERAL_EXPERT").
- Admin can see all the created report and their responses.
- For providing extra security, fields in the Database class cannot be reached from anywhere(private static and no encapsulation). However, required actions happen in the static functions of the Database. And again for security, specific methods such as 'createCitizen()' take a parameter called 'key_password'. If this parameter value is not equal to the admin password, then exit from the method.
- Citizens can see all the taxes that are created by the admin.

- ## 4 UML Diagram

