**SITE CONNECTIVITY CHECKER**

**A Project Work Synopsis**

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* 1. ***Problem Definition:***

Usually, when people need some site to interact with and it crashes, they update the page many times to check whether the site is available or not. Instead of this, we propose the command line app which will ping the site every minute by sending ICMP messages in a background mode. When the site becomes available the app will send notification with site link to the user.

* 1. ***Project Overview:***

1. After starting app execution you should add sites, which you often visit, to the sitelist.

2. When some of these sites crashes - start pinging it, also this site will be added to the checklist automatically.

3. As soon as the site is available again, the app will stop pinging it, send you notification with a link and delete this site from the checklist.

4. If the app is pinging the site, but you are not interested in that site anymore, just stop pinging.

5. You can also see the sitelist, the checklist, add new sites and delete old ones whenever you want.

6. Stop app execution if there is no need in that.

* 1. ***Software Specifications:***
* PYTHON3: **Python 3** is a newer version of the [Python programming language](https://www.guru99.com/python-tutorials.html) which was released in December 2008. This version was mainly released to fix problems that exist in Python 2. The nature of these changes is such that Python 3 was incompatible with Python 2. It is **backward incompatible**.

Some features of Python 3 have been backported to Python 2.x versions to make the migration process easy in Python 3. As a result, for any organization who was using Python 2.x version, migrating their project to 3.x needed lots of changes. These changes not only relate to projects and applications but also all the libraries that form part of the Python ecosystem.

1. ***Research Methodology***:

We decided to use observer pattern as it perfectly suits to our solution: an object (pinger) maintains dependent (user), called observer, and automatically notifies it about any changes (sites' availability) using special methods (sending notifications).

Single Responsibility Principle - the source code consists of 2 classes: one of them is a pinger, which is responsible for pinging sites. Another class is responsible for the client side, where actions with the database take place and notifications are called. In our case, we have implemented a client under WindowClient.py.

Open-closed Principle - the pinger contains a list of users, which are classes inherited from Client. Thus, you can create a class that inherits Client for another OS without changing the Pinger class.

Liskov substitution Principle - functions working with base classes have the ability to use objects of derived classes.

Interface Segregation Principle - interfaces contain only necessary for pinging and managing data methods.

Dependency Inversion Principle - the relationship between classes is based on dependencies on abstractions, not on concrete implemented classes.

***5. References***:

https://docs.python.org/3/reference/

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