



Middle East Technical University Northern Cyprus Campus  
Computer Engineering Program

CNG 492 Computer Engineering Design II

**DIP**  
**Discovering Issue-tracking Profiles of Software  
Development Teams**

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**Installation and Deployment Manual**

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# Chapter 1

## Installation

The final version of the program is presented in the same folder as this file in .exe format to run in the Windows operating system. By running this file, the program can be used without the need for any installation process. However, if there is any problem with this file, it may be necessary to install manually by following the steps below.

### 1.1 Git Repository

Every part of the developed tool is kept under the GitHub repository named GithubTracker under the DIP Group.

- Link: <https://github.com/DIP-Group/GithubTracker>

Researchers who want to use the tool should create a clone on their own computers via this repository. The .exe file mentioned above can also be found under this repository.

### 1.2 Programming Language and Version

The 3.8 version of the Python programming language was used during the development process. This programming language and version should be loaded in the computers of researchers who want to use. The Visual Studio Code IDE was used in the development process. We recommend using this IDE to avoid any problems.

## **1.3 Libraries**

The libraries used and their explanations are given below. These libraries must be installed before the tool is used. These libraries can be installed with the Python Package Installer (pip) via the command line.

### **1.3.1 Tkinter**

While developing the Graphical User Interface, the Tkinter library of the Python language was used. This library has been preferred because it can be accessed from the code and is easy to use while developing a desktop application. During GUI development, Label, Button, TextField, ListView, File Explorer, Tool Tip components from this library were used.

### **1.3.2 PyGithub**

This library is used to communicate with the GitHub API. It is necessary to send the URL of a repository to contact with GitHub API through library. At the end of the operation, the library returns a repository object. This object contains the information required for analysis.

### **1.3.3 Matplotlib**

The matplotlib library derives many types of graphs from data in different data types and data structures. We also used various graphics such as bar chart, box plot, line graph in our project. We selected and applied the most suitable graphical representation for our data from the graphics in the matplotlib library.

### **1.3.4 csv**

The csv library takes the derived or existing data and converts it into a .csv file in the desired format and enables the data to be exported from the program. In our project, we also created .csv file and exported the metrics and Question-Answer table we calculated via csv library.

### **1.3.5 Pickle**

In order to overcome the GitHub API Rate Limit problem, repository objects are kept on the local computer. The pickle library was used during this process. With this library, repository objects can be saved to the computer in binary format and then read multiple times if desired. In this way, GitHub Rate Limit problem has been overcome to some extent, since no saving is performed for every read operation.

Other libraries used while developing the application are listed below.

- statistics
- sys
- os
- re
- PIL
- urllib
- io