

The “KhalafianA\_SrovnaniRuznych\_AP\_2020.zip” archive contains 3 folders:

“tsp” folder contains an application that includes all source codes, necessary libraries and frameworks;

the “Release” folder contains a compiled version of the application with the tsp.exe executable file;

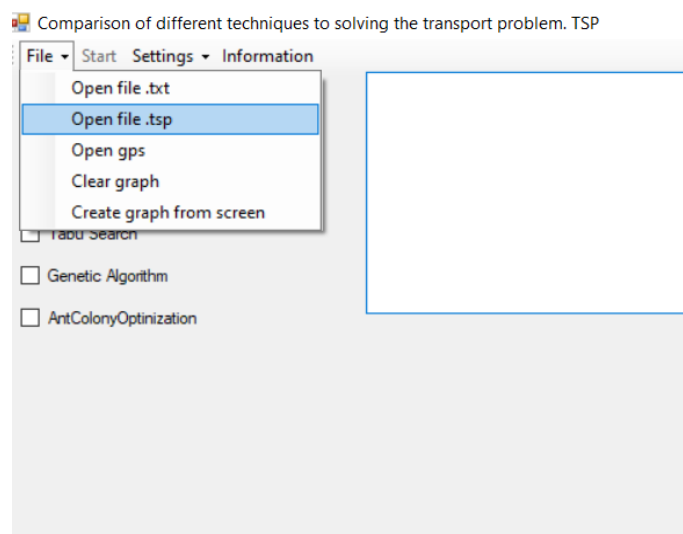
the “TestData” folder contains files used as test data in the project.

The recommended screen resolution for working with the application is 1920 x 1080.

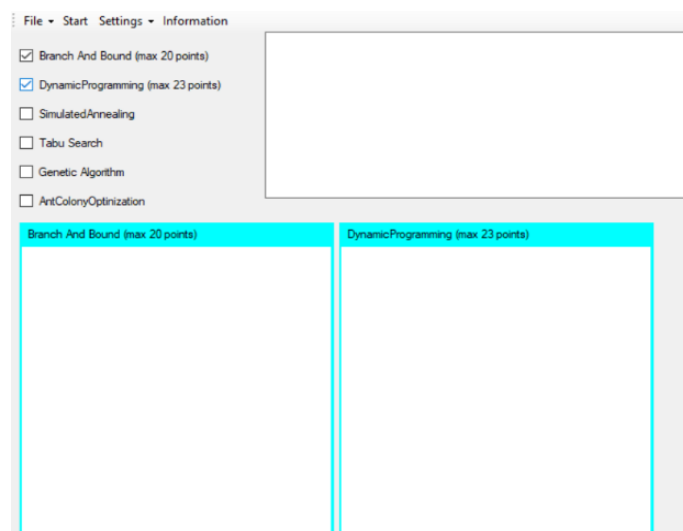
## 1. Interaction with files with the extension .txt and .tsp.

To add a file with the extension .txt and .tsp to the application, click on the button

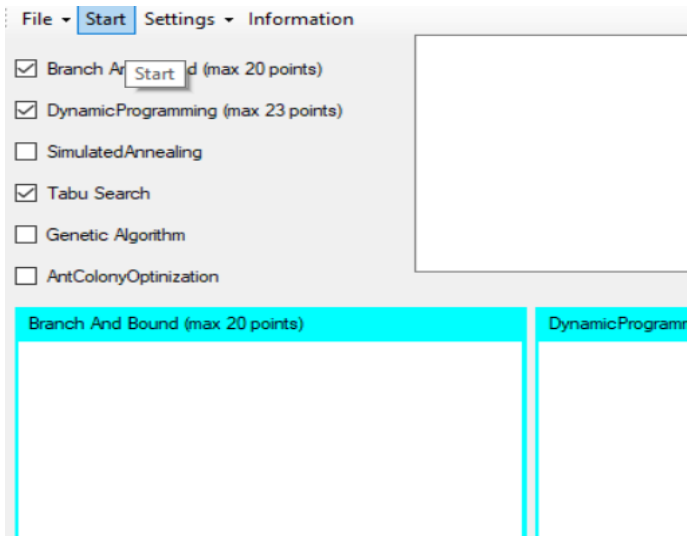
**File ⇒ Open file .txt / Open file .tsp** and select a file with the corresponding extension.



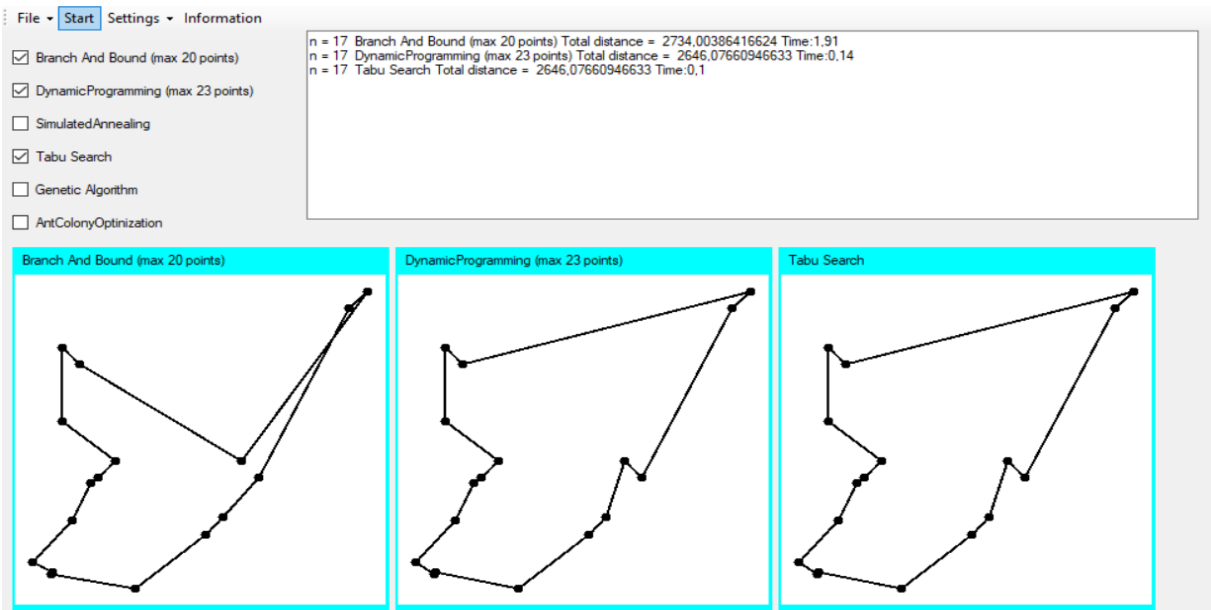
A file will be uploaded to the application. Then, in the left part of the form, it is necessary to select the algorithms that the user wants to choose to solve the traveling salesman problem. Windows will be added to the form for graphical visualization of the solution.



After selecting the solution methods, the user must click on the **Start** button located on **the top panel**.

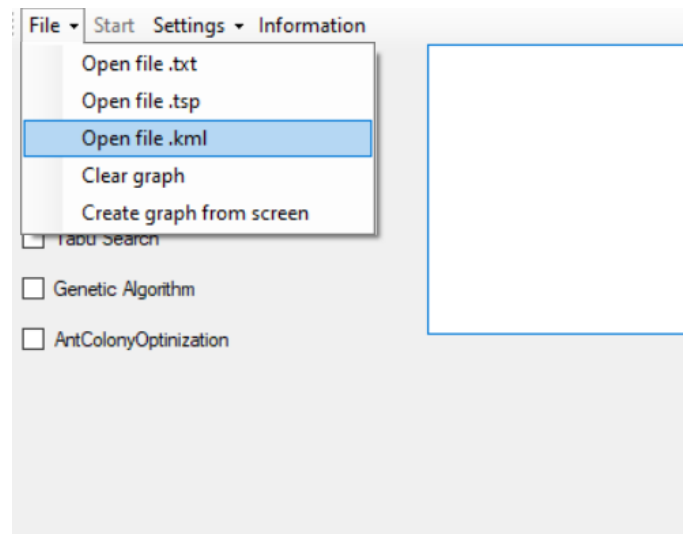


As a result of the application's work, a graphical visualization of the solution will be displayed at the bottom of the form, and in the textbox in the middle of the form, the result will be presented in the form of distance and time of the algorithm execution.

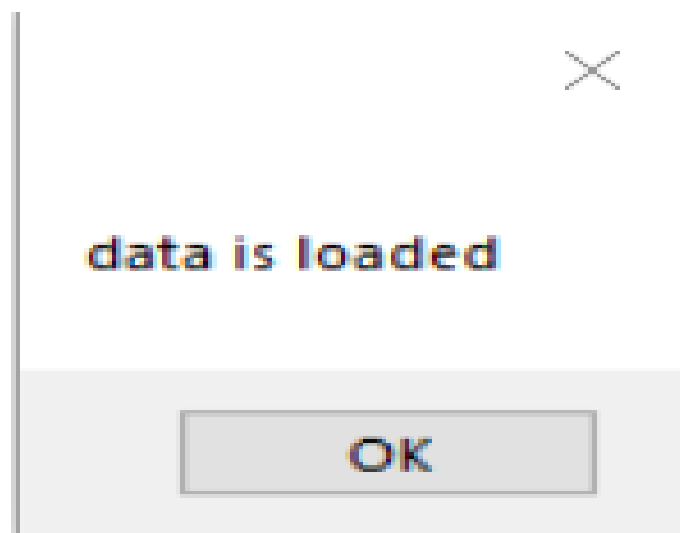


## 2. Interaction with files with the extension .kml.

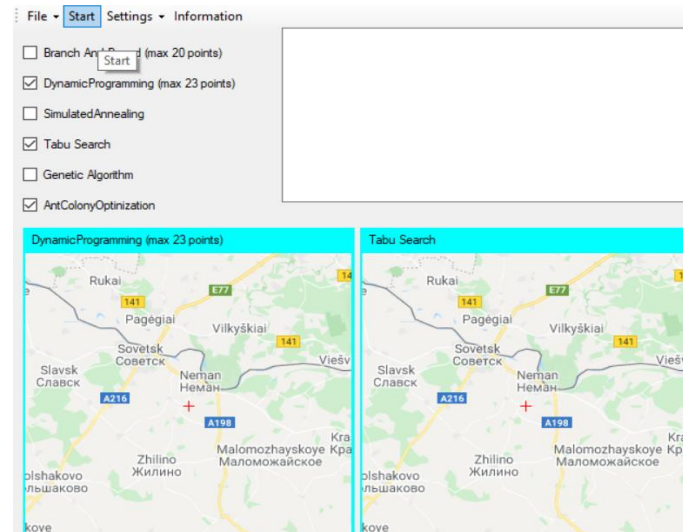
To add a file with the extension .txt and .tsp to the application, click on the button **File**  $\Rightarrow$  **Open file .kml** and select a file with the corresponding extension.



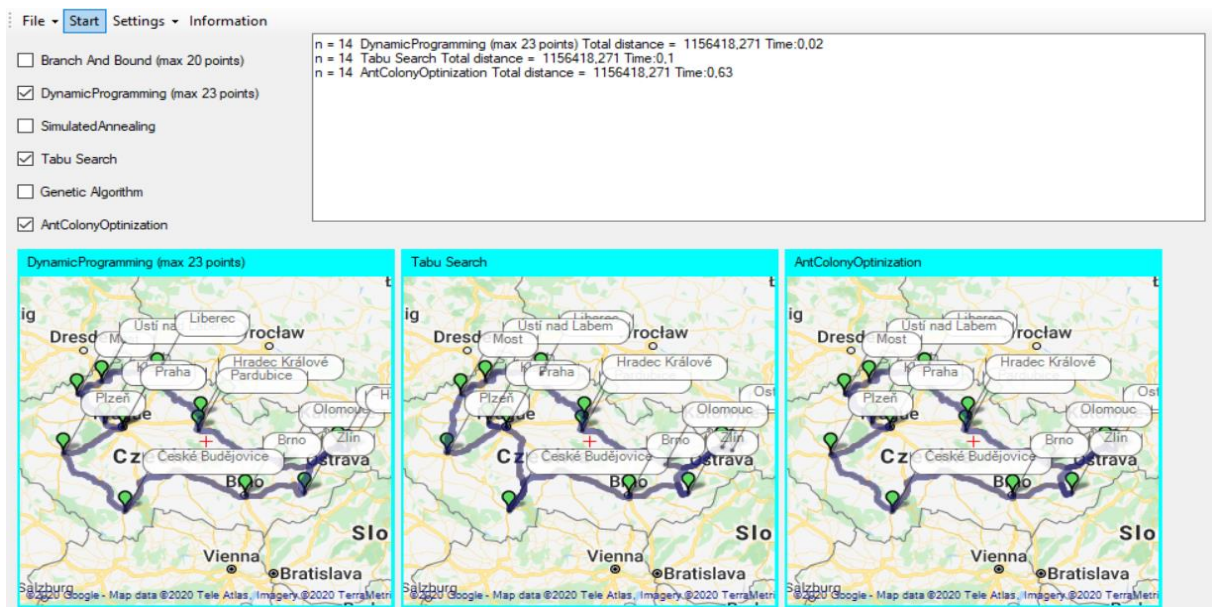
The user needs to wait until the Start button located on the top panel becomes active. At this point, using the MapBox service, the distance matrix is loaded into the application. After loading the distance matrix into the project, the user will see a pop-up window with the text "data is loaded".



Then, in the left part of the form, it is necessary to select the algorithms that the user wants to choose to solve the traveling salesman problem. Windows will be added to the form, which will serve for graphical visualization of the solution. After selecting the solution methods of interest to the user, it is necessary to click on the **Start** button located on the **top panel**.

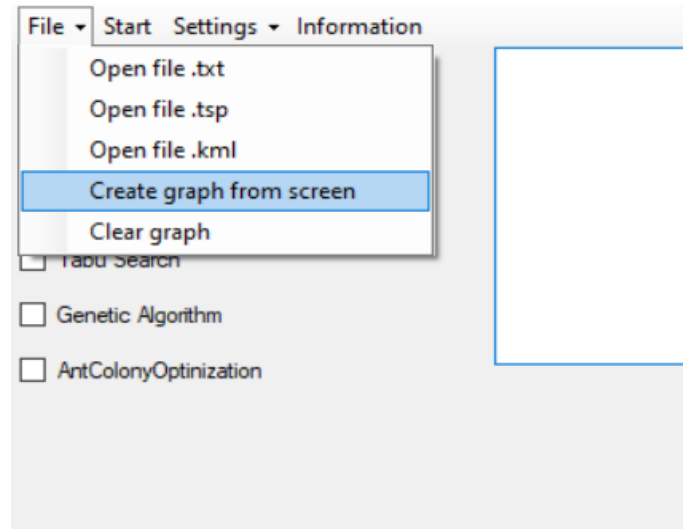


As a result of the application's work, a graphical visualization of the solution will be displayed at the bottom of the form, and in the textbox in the middle of the form, the result will be presented in the form of distance and time of the algorithm execution.

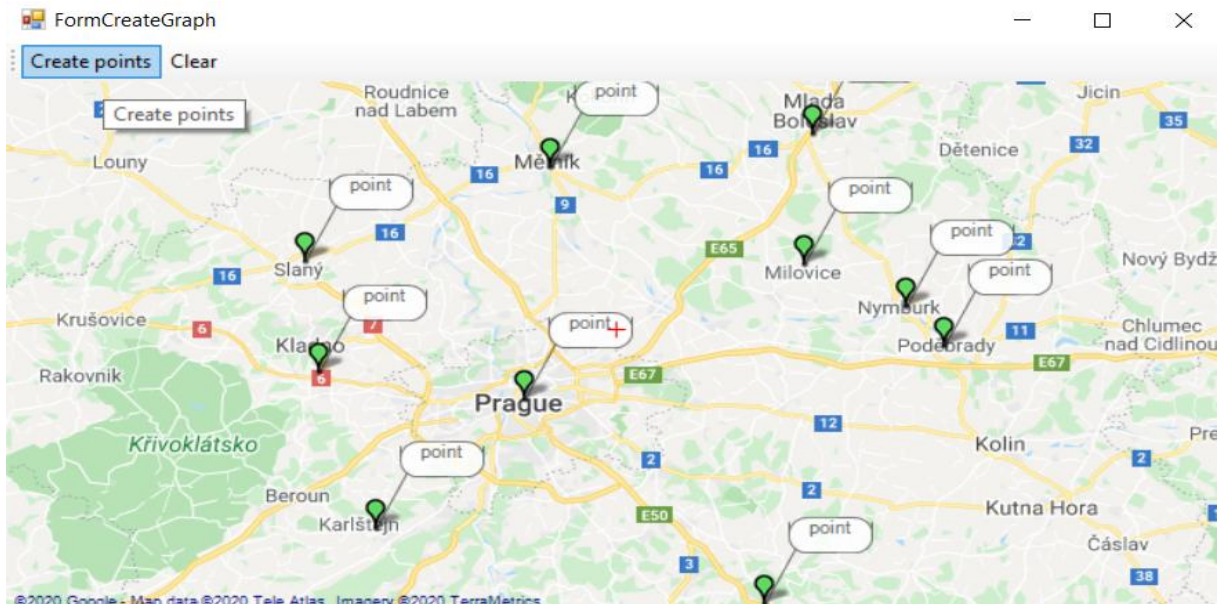


### 3. Adding points to the map.

The application provides the ability to work with the map, namely adding own points to the map and receiving the results of the algorithms with visualization on the map. To do this, the user needs to click on the File button **File** → **Create graph from screen**.

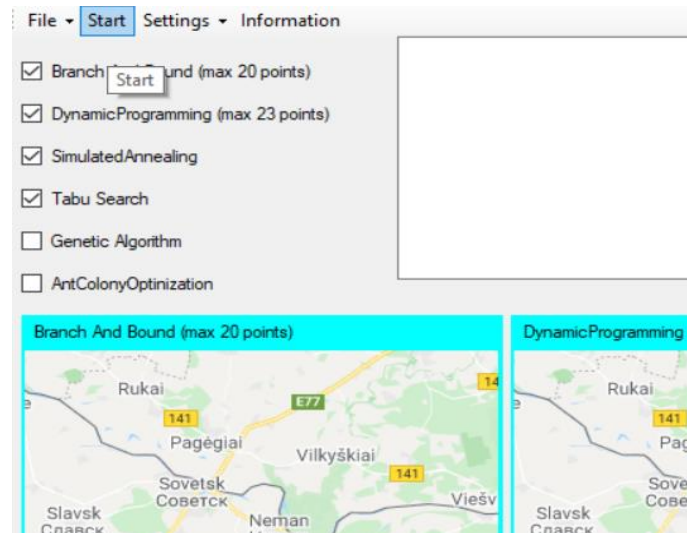


As a result of these actions, the application displays a new form on which the user can add points. After clicking the **Create Targets** button, the distance matrix will be calculated.

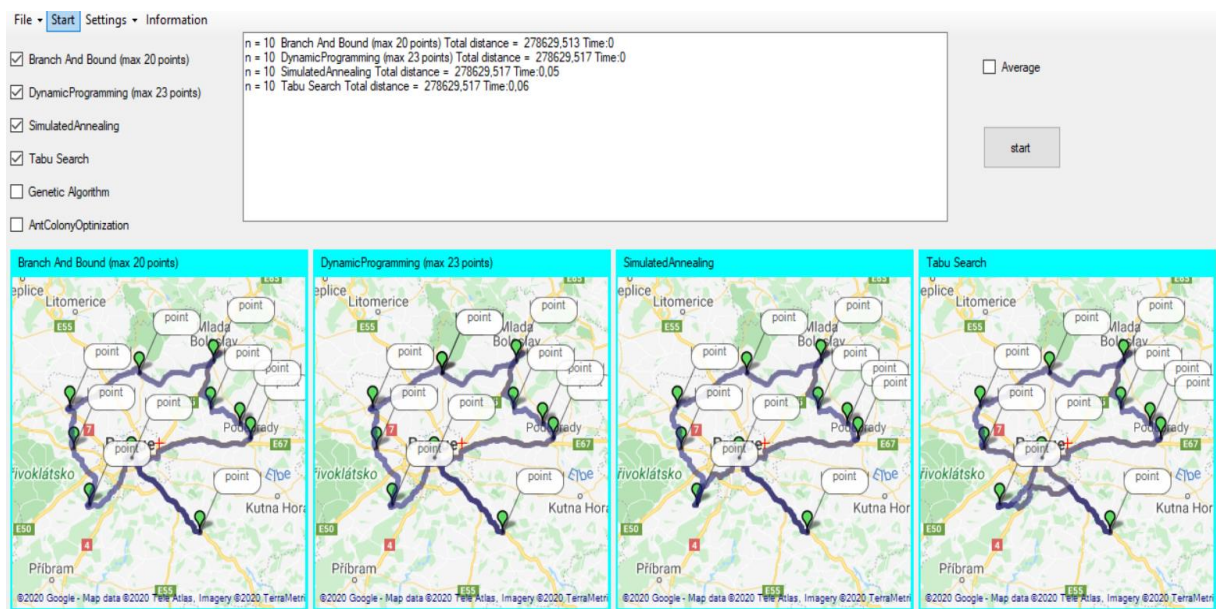




Then, in the left part of the form, it is necessary to select the algorithms that the user wants to choose to solve the traveling salesman problem. Windows will be added to the form, which will serve for graphical visualization of the solution. After selecting the solution methods of interest to the user, it is necessary to click on the **Start** button located on the **top panel**.



As a result of the application's work, a graphical visualization of the solution will be displayed at the bottom of the form, and in the textbox in the middle of the form, the result will be presented in the form of distance and time of the algorithm execution.



**IMPORTANT:** When adding points to the map, please add points that are not at a great distance from each other. The MapBox service is used to obtain the distance matrix, and the OpenStreetMap service is used to visualize the route. These services in non-commercial mode work with restrictions.