

test plan

First Version



Bilger yahov

oLEKSANDR SUPRUNENKO

ILIA NIKUSHEV

GEORGI CHISHIRKOV

LYUBOMIR DIMOV

MENGCHUAN LIU

Traffic Lights System

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# **Introduction**

## **Purpose**

This test plan describes the testing approach and overall framework that will drive the testing of the Traffic Lights System. The document introduces:

* Test Strategy: rules the test will be based on, including the givens of the project; description of the process to set up a valid test.

## **Project Overview**

Traffic Lights System is a tool provide with the necessary tools to regulate the traffic within Csharp city to prevent traffic accidents. By having control over the traffic system the mayor’s desire of safe city will be satisfied.

The functionality of the traffic stimulation program that can simulate different traffic situations within the city. The simulations can be adjusted for different scenarios and will provide with accurate results that can be related to real life.

## **Audience**

* Project team members perform tasks specified in this document, and provide input on this document.
* Project Manager Plans for the testing activities in the overall project schedule, reviews the document, tracks the performance of the test according to the task herein specified, approves the document and is accountable for the results.

# **Test Strategy**

## **Test objectives**

The objective of the test is to verify that the functionality of Traffic Lights System works according to the specifications.

The final product of the test is twofold:

* A production-ready software;
* A set of stable test scripts that can be reused for Functional test execution.

## **Test Assumptions**

**Key Assumptions**

* Production like data required and be available in the system prior to start of Functional Testing.

**General**

* Exploratory Testing would be carried out once the build is ready for testing.
* Performance testing is not considered for this estimation.
* The project will provide test planning, test design and test execution support.
* There is no environment downtime during test due to outages or defect fixes.
* The system will be treated as a black box; if the simulation results shows correctly and in the reports, it will be assumed that the application is working properly.

**Functional Testing**

* During Functional testing, tester will use preloaded data which is available on the system at the time of execution.

## **Test Principles**

* Testing will be focused on meeting the business objectives, cost efficiency, and quality.
* There will be common, consistent procedures for all teams supporting testing activities.
* Testing processes will be well defined, yet flexible, with the ability to change as needed.
* Testing will be a repeatable, quantifiable, and measurable activity.

## **Functional Test**

Functional testing will be performed to check the functions of application. The functional testing is carried out by feeding the input and validates the output from the application.

### **Select a crossing to place**

**Purpose:** The purpose of this test is to select the crossing.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Select a crossing to place | 1. Select a crossing (type 1, type 2) | System updates the current selected crossing type and the GUI |  |

### **Place a crossing**

**Purpose:** The purpose of this test is to place the crossing.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Place a crossing | 1. User positions mouse over a grid slot 2. User clicks to place the crossing on the grid. | System changes the specified grid slot to be with the specified crossing type. |  |
| 1. User positions mouse over a grid slot 2. User clicks to place the crossing on the occupied grid. 3. User removes the current crossing | System overrides the crossing. |  |
| 1. User positions mouse over a grid slot 2. User clicks to place the crossing on the occupied grid. 3. User moves the mouse away from the grid. | System updates the GUI. |  |

### **Remove a crossing**

**Purpose:** The purpose of this test is to remove the crossing.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Remove a crossing | 1. User right clicks on the crossing. 2. User prompts system to delete the current crossing | System removes it from the grid and places it into the recycle bin. |  |

### **Create a simulation**

**Purpose:** The purpose of this test is to create a simulation.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Create a simulation | 1. User prompts the system to create a new simulation. | System empties the grid. |  |
| 1. User prompts the system to create a new simulation. 2. User saves their changes. | System empties the grid. |  |

### **Save a simulation**

**Purpose:** The purpose of this test is to save a simulation.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Save a simulation | 1. User prompts the system to save the current simulation. 2. User specifies file name and location. | System saves the simulation. |  |
| 1. User prompts the system to save the current simulation. 2. User specifies file name and location. 3. User replace the existed file with same name, or user rename the current file | System saves the simulation. |  |

### **Load a simulation**

**Purpose:** The purpose of this test is to load a simulation.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Load a simulation | 1. User prompts the system to load an exist simulation. 2. User specifies file location. | System load the simulation. |  |
| 1. User save or close without save the current simulation. 2. User prompts the system to load an exist simulation. 3. User specifies file location. | System overrides the crossing. (pass) |  |

### **Edit a road traffic flow**

**Purpose:** The purpose of this test is to place the crossing.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Edit a road traffic flow | 1. User inputs the new flow. 2. User confirms new value. | System sets the number as the current flow. |  |
| 1. User inputs the new flow 2. User confirms new value. 3. User reenter the value. 4. User confirms again. | System sets the number as the current flow. |  |

### **Start a simulation**

**Purpose:** The purpose of this test is to start a simulation.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Start a simulation | 1. User accesses the start functionality | System starts the execution of the simulation |  |

### **Stop a simulation**

**Purpose:** The purpose of this test is to stop a simulation.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Stop a simulation | 1. User accesses the stop functionality | System stops the execution of the simulation |  |

### **Pause a simulation**

**Purpose:** The purpose of this test is to pause a simulation.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Pause a simulation | 1. User accesses the pause functionality | System pauses the execution of the simulation |  |

### **Restart a simulation**

**Purpose:** The purpose of this test is to restart a simulation.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Restart a simulation | 1. User accesses the restart functionality | System restarts the execution of the simulation |  |

### **Undo an action**

**Purpose:** The purpose of this test is to undo the last action.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Undo an action | 1. User accesses the undo functionality | System restores the previous state of the application before the action was performed. |  |
| 1. User stops the current simulation 2. User accesses the undo functionality | System restores the previous state of the application before the action was performed. |  |

### **Redo an action**

**Purpose:** The purpose of this test is to undo the last action.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Redo an action | 1. User accesses the redo functionality | System restores the previous state of the application before the action was undone |  |

### **Save simulation results**

**Purpose:** The purpose of this test is to save simulation results

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Save simulation result | 1. User accesses the save simulation functionality. 2. User prompts system to save results 3. User selects format of the file with results and file path 4. User confirms action | System saves results in selected format at selected file path |  |

### **Show the help window**

**Purpose:** The purpose of this test is to view manual of the application

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Show the help window | 1. User accesses the Help functionality | System presents the manual of the application |  |

### **Exit application**

**Purpose:** The purpose of this test is to exit application

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Exit application | 1. User accesses the close functionality. 2. User prompts system to exit application | System closes the application. |  |
| 1. User accesses the close functionality. 2. User prompts system to exit application 3. User selects to save simulation | System saves simulation and closes the application |  |

### **Override simulation (Add police, ambulance, firetruck cars)**

**Purpose:** The purpose of this test is to override simulation

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Override simulation | 1. User selects the ‘override’ functionality. 2. User selects start and end points of “special” cars route. 3. User prompts system to simulate moving of “special” cars. | System displays changed simulation. |  |

### **Relocate crossing**

**Purpose:** The purpose of this test is to relocate crossing on the grid

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Relocate crossing | 1. User holds their left mouse button over a crossing. 2. User moves their mouse towards a desired grid slot. 3. User releases the mouse button. | System changes the crossing’s position. |  |

### **Startup the application**

**Purpose:** The purpose of this test is to startup the application

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Startup the application | 1. User makes double click on the application’s icon | System provides the user with the initial state of the application |  |
| 1. User right clicks on the application’s icon 2. User prompts system to open application | System provides the user with the initial state of the application |  |

### **Show simulation result**

**Purpose:** The purpose of this test is to view results of the simulation

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Show simulation result | 1. User accesses the results functionality 2. User prompts system to show results of the simulation | System provides with the most recent results of the simulation |  |

### **Select crossing’s component to make changes**

**Purpose:** The purpose of this test is to change component of the crossing

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Select crossing’s component to make changes | 1. User selects crossing 2. User selects component to change | System sets the current active component to the newly selected |  |



### **Set current active crossing**

**Purpose:** The purpose of this test is to set current active crossing

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Set current active crossing | 1. User selects the editing properties tool from the toolbox. 2. User hovers over a crossing over the grid 3. User clicks on a crossing from the grid. | System updates the current active component. |  |

### **Edit a crosswalk’s pedestrian flow**

**Purpose:** The purpose of this test is to edit pedestrian’s flow

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Edit a crosswalk’s pedestrian flow | 1. User selects crosswalk 2. User inputs a new value for the flow. 3. User prompts system to change flow | System saves value of the flow |  |

### **Start simulating pedestrian**

**Purpose:** The purpose of this test is to simulate pedestrian’s flow

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Start simulating pedestrian | 1. User prompts system to simulate pedestrian flow | System starts moving the pedestrians on the places specified |  |



### **Access “Saved” crossings**

**Purpose:** The purpose of this test is to view saved templates of crossings

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Access “Saved” crossings | 1. User prompts system show saved templates of crossings | System shows all previously saved crossings |  |

### **Access “Removed” crossings**

**Purpose:** The purpose of this test is to view crossings which were removed

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Access “Removed” crossings | 1. User prompts system show removed crossings | System shows all previously removed crossings |  |

### **Empty the recycle bin**

**Purpose:** The purpose of this test is to view crossings which were removed

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case** | **Method** | **Expected result** | **Success?** |
| Access “Removed” crossings | 1. User prompts system to remove all crossings in the recycle bin | System removes all items from the bin |  |

# Test Environment

Traffic Lights System application will do the simulation.

A windows environment with .Net 3.0+ Framework.