

# Test Plan

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## 1 Introduction

This test plan has been created to check if our system conforms to all functional requirements and also to specify the types of testing which will be used during to validate the functional requirements, action required on failed tests and time line to perform testing of the system.

## 2 Objectives and Tasks

### 2.1 Objectives

The objective of testing our system is to provide adequate testing of functional requirements, validation and behaviour of system under simulated condition. Exhaustive testing of system is not possible but we will use a diverse range of tests to find bugs and errors in the system including unit, functional, error and system testing. System is implemented using java therefore cross platform testing will be performed too. Some automation testing will be used with manual testing to find bugs are errors in the system.

### 2.2 Tasks

- Identifying functional requirements and writing the tests cases.
- Executing tests.
- Record the failed test cases and reporting them to team.
- Performing the re-test on failed test cases one bugs are fixed.

## 3 Scope

In context to our system, which is implemented using agent-based model it will be tested at three different levels of functionality.

- Actual agent behaviour:  
Can be checked by changing environment variables around agents. This forms functional requirements of the system as well. We have two agents in our system.
  1. Vehicles  
Following function requirements will be tested in Vehicle class
    - Accelerate
    - Move towards
    - Get vehicle ahead
    - Find best route
    - Slow down
  2. Traffic Lights
- Runtime errors:  
Elements and data loads at run time will form part of runtime testing. Giving all valid and invalid inputs and check results can check this. Following elements and data will be tested
- Overall behaviour of system:  
Checks that all agents of the system produce expected results in a given scenario. This will include testing of agent's interaction with other components of environment (roads, traffic lights) when programme will be executed at run time.