**Lab 03:** **Draw Data Flow Diagram -DFD (System S1)**

**Lab Learning Outcomes (LLO)**

By completion of the lab the students should be able to

1. Draw DFD up to level-2 for system S1 using an online tool and submit at the end of lab.

**Tools Required**

For example, [StarUML](https://staruml.io/), [Lucidchart](https://www.lucidchart.com/pages/), [penpot](https://penpot.app/) and [Figma](https://www.figma.com/) etc.

**Task To Do**

It is assumed that students know all the rules for drawing DFD diagram and will be able to draw it for the system S1 i.e. **Traffic Violation System (TVS)**. In continuation of system S1, you are required to identify sources and destinations and decompose the identified processes up to level-2. The processes involved will get some input and produce some output. You must take care of DFD rules. Students are required to **draw** a Data Flow Diagram up to level-2 for System S1. For your convenience, consider the following set of processes, inputs, outputs, sources and destinations that have been identified. You must put them in order and show the flow of data from one process to another and label all arrows.

**Level 0 DFD: Context Level**

* **Process:** Traffic Violation System
* **Inputs:** Traffic Data (from cameras/sensors)
* **Outputs:** Violation Reports, Verification Requests
* **Sources:** Cameras/Sensors
* **Destinations:** Traffic Police Officers, Vehicle Owners

**Level 1 DFD: Traffic Violation System**

1. **Process:** Acquire Traffic Data
   * **Inputs:** Traffic Data (from cameras/sensors)
   * **Outputs:** Captured Traffic Data
   * **Sources:** Cameras/Sensors
   * **Destinations:** Data Processing
2. **Process:** Process Data and Detect Violations
   * **Inputs:** Captured Traffic Data
   * **Outputs:** Detected Violations
   * **Sources:** Acquire Traffic Data
   * **Destinations:** Verify Violations
3. **Process:** Verify Violations
   * **Inputs:** Detected Violations
   * **Outputs:** Verified Violations, Verification Evidence
   * **Sources:** Process Data and Detect Violations
   * **Destinations:** Traffic Police Officers
4. **Process:** Communicate Violations
   * **Inputs:** Verified Violations
   * **Outputs:** Violation Notifications
   * **Sources:** Verify Violations
   * **Destinations:** Vehicle Owners
5. **Process:** Manage Data
   * **Inputs:** Captured Traffic Data, Detected Violations, Verified Violations
   * **Outputs:** Updated Data
   * **Sources:** Acquire Traffic Data, Process Data and Detect Violations, Verify Violations
   * **Destinations:** Data Storage

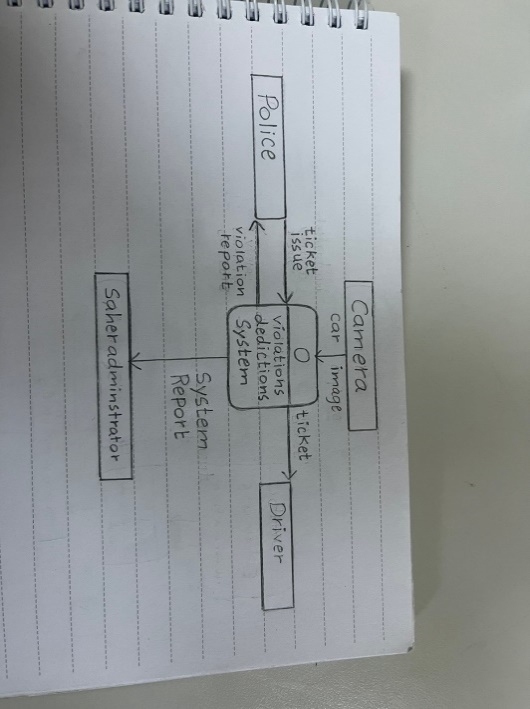
**Level 2 DFD: Process Data and Detect Violations**

1. **Process:** Analyze Traffic Data
   * **Inputs:** Captured Traffic Data
   * **Outputs:** Analyzed Data
   * **Sources:** Acquire Traffic Data
   * **Destinations:** Classify Violations
2. **Process:** Classify Violations
   * **Inputs:** Analyzed Data
   * **Outputs:** Classified Violations
   * **Sources:** Analyze Traffic Data
   * **Destinations:** Assign Severity Levels
3. **Process:** Assign Severity Levels
   * **Inputs:** Classified Violations
   * **Outputs:** Violations with Severity Levels
   * **Sources:** Classify Violations
   * **Destinations:** Verify Violations
4. **Process:** Gather Verification Data
   * **Inputs:** Violations with Severity Levels
   * **Outputs:** Verification Data
   * **Sources:** Assign Severity Levels
   * **Destinations:** Verify Violations
5. **Process:** Prepare Verification Requests
   * **Inputs:** Verification Data
   * **Outputs:** Verification Requests
   * **Sources:** Gather Verification Data
   * **Destinations:** Verify Violations
6. **Process:** Generate Evidence
   * **Inputs:** Violations with Severity Levels
   * **Outputs:** Verification Evidence
   * **Sources:** Assign Severity Levels
   * **Destinations:** Verify Violations

You may also get help from the following samples produced by the students. These samples may not be complete, and students are required to complete them and identify any mistakes/errors or space for improvements or changes required.

**Example:**

The following are samples shown below drawn by the students.

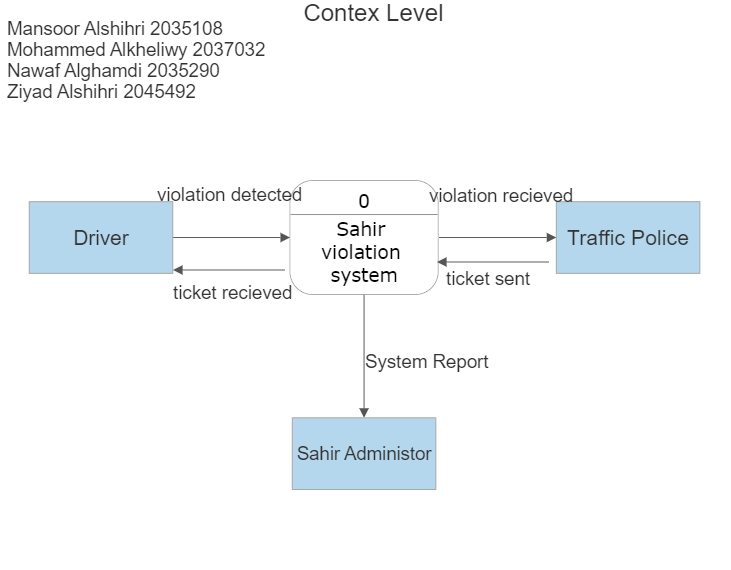


**Sample 1 (TMS-1)**

A diagram of a driver's license

Description automatically generated

**Sample 2 (TMS-S1)**



Diagram

Description automatically generated

Diagram

Description automatically generated

Text, letter

Description automatically generated