1. Abbreviations:

|  |  |
| --- | --- |
| PK | Primary Key |
| FK | Foreign Key |
| #.. | Relation #... |

1. Subject area

This DB is for the Road accidents registration system. It contains accidents with the violation caused each accident, address of the accident, severity, number of people injured and killed. Analysis can also be made by regions, policeman who registered the accident, drivers and vehicles.

1. Database description

* **Road accidents** is the main table and contains data of the specific accident. It’s PK is Accident\_id. It should be serial as the accidents are registered one after another. It consists of a number.

This table has four FKs:

FK1-Traffic\_violation\_id, for the table **Traffic\_violations**, it is a link to the main traffic rule violation which caused the accident. This relation (***#1***) is many-to-one as there can be many accidents caused by one rule violation.

FK2-Accident\_severity\_id, for the table **Accidents\_severities**, it is a link to the severity of the accident. This relation (***#2***) is many-to-one as there can be many accidents with the same severity.

FK3-Policeman\_id, for the table **Policemen**, it is a link to the policeman who registered the accident. This relation (***#3***) is many-to-one as there can be many accidents that are registered by the same policeman.

FK4-Region\_id, for the table **Regions**, it is a link to the region where the accident was registered. This relation (***#4***) is many-to-one as there can be many accidents that are registered in one region.

FK5-City\_id, for the table **Cities**, it is a link to the city where the accident was registered. This relation (***#5***) is many-to-one as there can be many accidents that are registered in one city.

FK6-Address\_id, for the table **Addresses**, it is a link to the address where the accident was registered. This relation (***#6***) is many-to-one as there can be many accidents that are registered in one address.

There are also columns for the numbers of the people injured in the accident: Slightly\_Injured, Seriously\_Injured, Killed. To prevent missing the data, if there are no people injured or killed, the cells must be filled with zeros, null is an unavailable option.

* **Traffic\_violations** is the table for the traffic rule violations descriptions with their ids. Violation\_id is an integer number and PK for the table. It should be serial. Violation is the rule which was violated in a text type.
* **Accidents\_severities** is the table for the accidents severities descriptions with their ids. Accident\_severity\_id is a PK. It should be serial. Severity\_description can be fatal, serious or slight only
* **Regions** is the table with the regions descriptions. Region\_id is a serial number and PK for the table. City is the city name which can be any 50 symbols limited region name.
* **City** is the table with the cities descriptions. City\_id is a serial number and PK for the table. City is the city name which is text type.
* **Address** is the table with the addresses descriptions. Address\_id is is a serial number and PK for the table. Address is the specific address which is text type.
* **Drivers\_accidents** is the table with **Road\_accidents** and **Drivers** in order not to create many-to-many relation. This table has two FKs:

FK1-Accident\_id, for the table **Road\_accidents**. This relation (***#7***) is many-to-one as there can be several recordings in the bridge table for each accident.

FK2-Person\_id, for the table **Drivers**. This relation (***#8***) is many-to-one as there can be several recordings in the bridge table for each driver. Not all the drivers have accidents recordings.

* **Vehicles\_accidents** is the bridge between tables **Road\_accidents** and **Vehicles** in order not to create many-to-many relation. This table has two FKs:

FK1-Accident\_id, for the table **Road\_accidents**. This relation (***#9***) is many-to-one as there can be several recordings in the bridge table for each accident.

FK2-Vehicle\_id, for the table **Vehicles**. This relation (***#10***) is many-to-one as there can be several recordings in the bridge table for each vehicles. Not all the vehicles have accidents recordings.

* **Vehicles** is the table with the data of all the vehicles. Vehicle\_id is an integer number and PK for the table (the PK can not be the same as Vehicle\_registration\_number as there can be a change of the number and the history should remain and continue). Each vehicle has Vehicle\_registration\_number, Vehicle\_model, Vehicle\_color, Vehicle\_country\_origin.
* **Persons** is the table with the data of people (policemen/drivers). Person\_id is an integer number and PK for the table. It related with tables **Drivers, Policemen (#11, 12)**

Each person also has Surname, Name, Patronymic (not obligatory, sometimes is missed), passport, driver\_licence\_number can be also missed, date of birth that restricts the age from 18 years.

* **Drivers** is the table with the data of all the drivers. Driver\_idis an integer number. It is a PK of the table.

FK – Person\_id, for the table Persons.

* **Policemen** is the table with the data of all the drivers. Policeman\_idis an integer number. It is a PK of the table.

FK – Person\_id, for the table Persons.