L.A. City Crime Analysis

ENTITY RELATIONSHIP

UI FLOW DIAGRAM

Phase Two

Group 27
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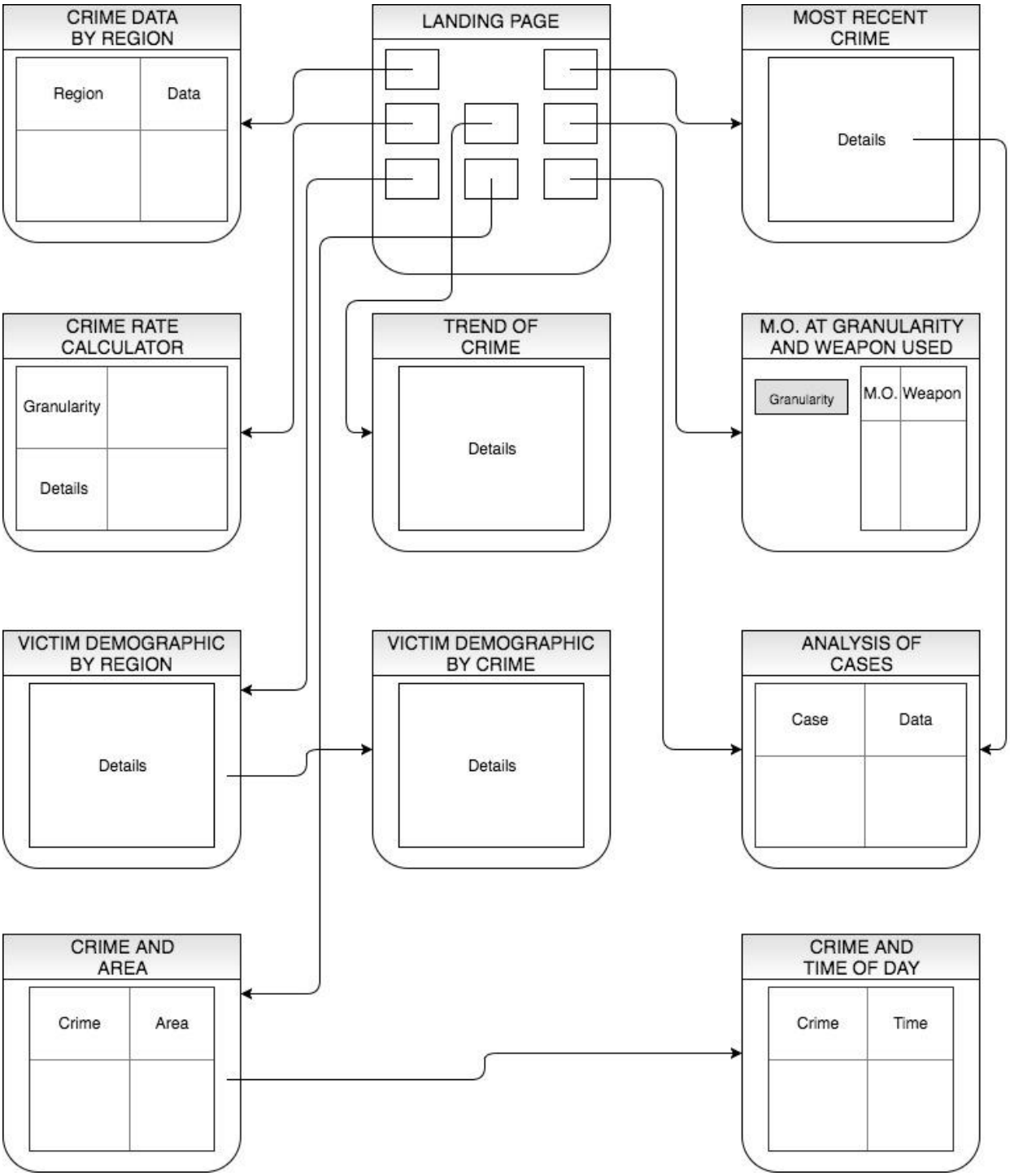
1. Overview

This project is a web-based application called LACCA, which helps analyzing crimes committed in the city of Los Angeles and at later stages can be implemented for other cities as well. LACCA can be used for describing a given area in terms of public safety and related variables. The user will be able to extrapolate information from the crime records stored in the database based on easy to-understand charts and graphs. This document contains an overview of the UI Design followed by the conceptual database design (ER diagram).

2. User Interface Design



The application UI is going to be designed using HTML5, CSS and Bootstrap to make it responsive. The UI can be viewed on both mobile screens as well as large desktops.

1. *Landing Page*

The website will have a landing page where the user will be provided with options to move to different pages to analyze the data about either any particular crime or crime in a particular area or kind of victims.

This page consists of the following components:

i) Table: A list of first 100 crimes in descending order of date.
ii) Buttons: For viewing the data based on different conditions as already shown in the User Interface Design.

2. *Crime Data by Region*

This page provides the user with the option to view the crimes and the data about them based on the region in which they happened.

3. *Most Recent Crime*

The user can view all the crimes and every available detail about them on this page. The crimes would be in descending order of date and will be from 1st Jan 2010 till present

4. *Crime Rate Calculator*

On this page, the user will be able to see the latest crime rate at various levels of granularities such as area name or sectors.

5. *Trend of Crime*

Graphs will be shown on this page, which will represent the rate of crime across a time period in the city.

6. *M.O.at Granularity and Weapon Used*

Here the user will be able to view the most common M.O. and Weapons Used at different levels of granularity and will the able to select the granularity level using a dropdown menu.

7. *Victim Demographic by Region*

Here the user will be able to view the demographics of victims, based on regions, across the complete timeline of the data.

8. *Victim Demographic by Crime*

Here the user will be able to view the demographics of victims, filtered by the type of crime, across the complete timeline of the data.

9. Analysis of Cases

This page provides the user with the facility to view stats of different type of crimes, that is, including both the solved and unsolved cases.

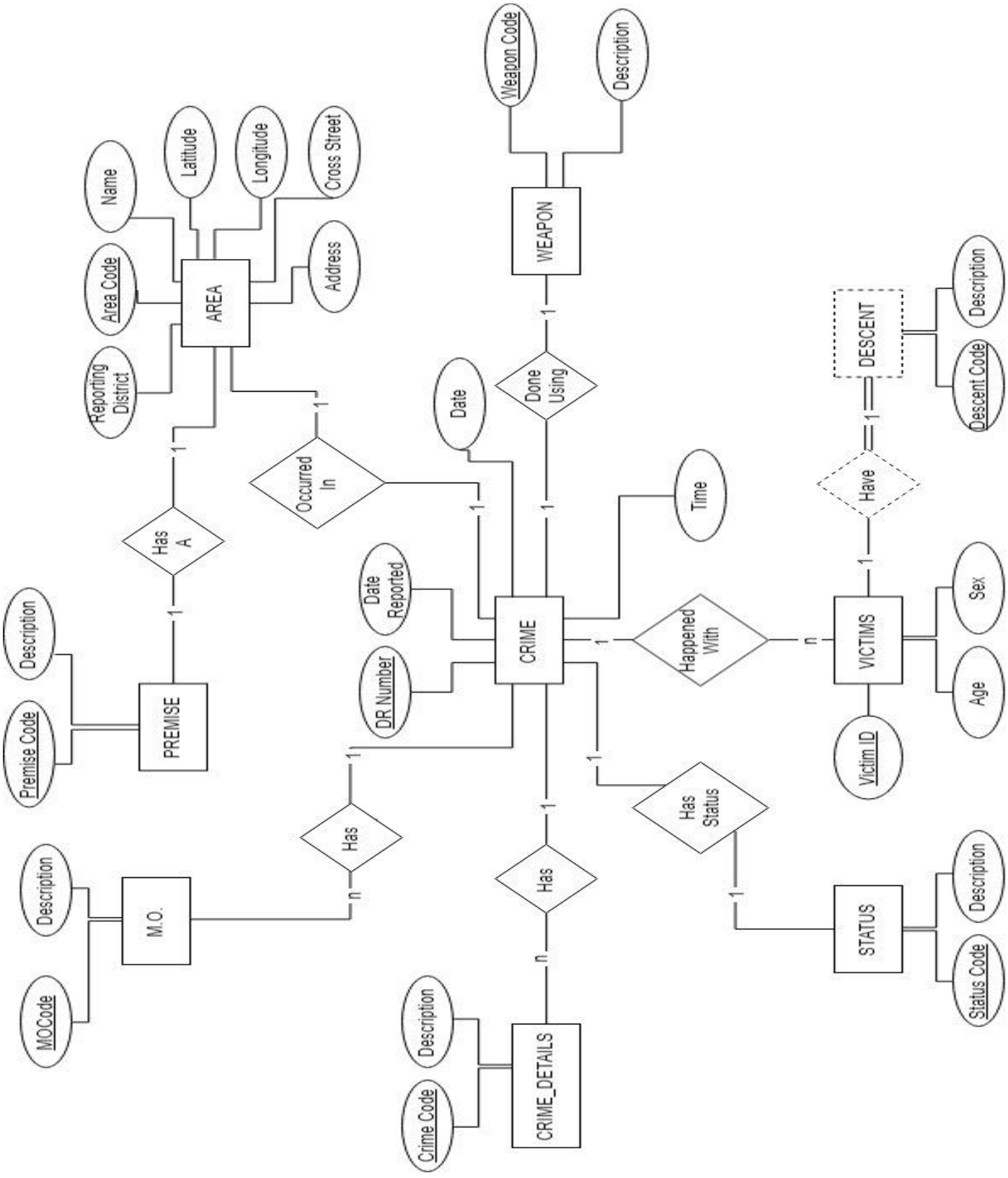
10. Crime and Area

Here the user will be able to find correlation between the premises of the crime and the area of the city.

11. Crime and Time of Day

Here the user will be able to find correlation between the premises of the crime and the time of day at which the incident happened.

3. Conceptual Database Design



3.1 Key Entities

I. **Crime:** This is the main entity which is connected to different other entities such as Area, Weapon, Victims, Crime Details and MO. Crime has Crime details associated with it. One Crime can have multiple Crime codes associated with it. DR Number uniquely identifies each crime. Every crime can have multiple Modus Operandi Code associated with it. Crime can be committed using one or more Weapons. There may be victims of each crime. Crime has a status. Crime takes place in area. Crime has Date Reported, Date (crime date), Time (Time of Crime). All these times are in MM/DD/YYYY format.

II. **Area:** LAPD has 21 Community Police Stations referred to as Geographic Areas within the department. These Geographic Areas are sequentially numbered from 1-21. These are area codes. Area is uniquely identified by an Area Code. The 21 Geographic Areas or Patrol Divisions are also given a name designation that references a landmark or the surrounding community that it is responsible for. For example, 77th Street Division is located at the intersection of South Broadway and 77th Street, serving neighborhoods in South Los Angeles. These are names of the area. Each area has reporting district. It is 4-digit code that represents a sub-area with in a Geographic Area. Area is also defined using Latitude, Longitude, Address (Street Address), Cross Street. Street address of crime incident rounded to the nearest hundred blocks to maintain anonymity. Each area is associated with a Premise.

III. **Premise:** Each Premise has an Area associated. Premise code uniquely identifies the premise. It also has Description i.e. the type of structure, vehicle, or location where the crime took place.

IV. **MO (Modus Operandi)**: Modus Operandi Activities associated with the suspect in the commission of the crime. Crime can be associated with multiple MO. Each MO has a MOCode. Description gives details about the MO.

V. **Crime Details**: Every Crime has a type of Crime committed. This entity Indicates the crime committed using the Crime Code and it description. Each crime can have one or many Crime code associated with it.

VI. **Status**: Status of the crime cases. IC is default. It has a status code that uniquely identifies a status. It has description of the status type.

VII. **Victims**: There could be no or one or more victims of the crime. Victim has age, sex. Victim also have Descent (race type).

VIII. **Descent**: Describes the Race of the Victims. Descent Code uniquely identifies the Decent. Description gives details of the descent.

3.2 Relationship and cardinality

I. **CRIME-Has-CRIME_DETAILS**: Every crime can have one or more codes and each code has a description associated with it.
II. **CRIME-Has Status-STATUS:** Each crime has a particular status and the default status is IC
III. **CRIME-Happened With-VICTIMS:** A crime in our database can have either 0 or 1 victim.
IV. **CRIME-Done Using-WEAPON**: Each crime is done using only one weapon which has a Unique ID.
V. **CRIME-Occurred In-AREA:** A crime can happen only in an area at once.
VI. **CRIME-Has-M.O.:** A crime can have more than one MOs each of which is described using a particular MOCode in the database.
VII. **VICTIMS-Have-DESCENT:** Each victim is identified by an individual descent. A descent cannot exist without the victim.
VIII. **AREA-Has A-PREMISE:** Every area has a premise where the crime has occurred.