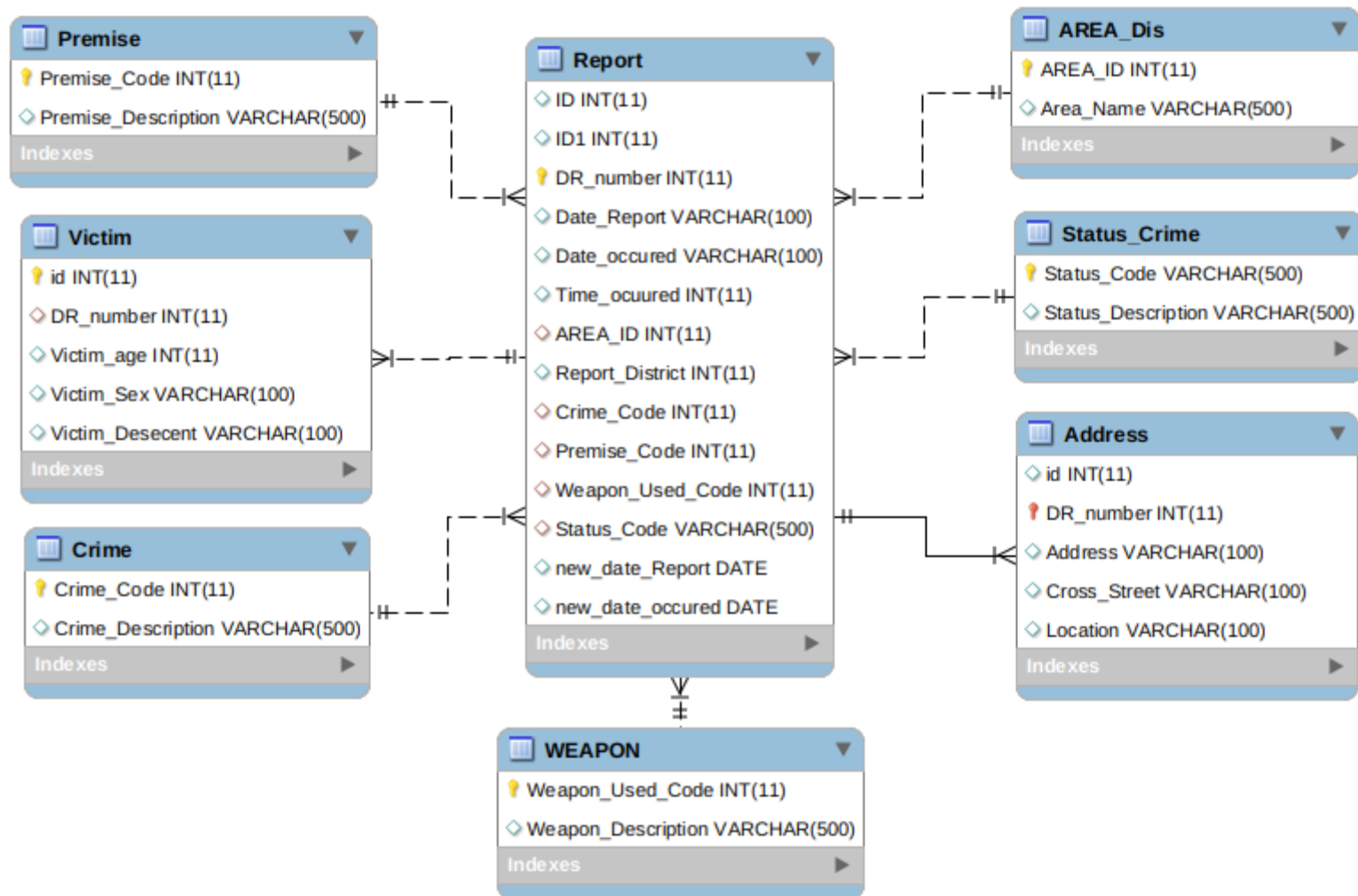


# Diagram of Tables

Crime in Los Angeles(Crime data from 2010 through September 2017)



## Q1: Finding the date that the most crime were reported.

### #Change Datatype

```
alter table report add column new_date date;
```

```
update report
```

```
set new_date = str_to_date(`datereported`, '%m/%d/%y');
```

new_date	count(new_date)	CrimeCodeDescription
2013-08-16	22	BATTERY - SIMPLE ASSAULT
2010-07-27	19	ROBBERY
2013-02-17	18	ROBBERY
2010-01-25	18	ROBBERY
2013-06-22	17	ASSAULT WITH DEADLY WEAPON, AGGRAVATE...

```
select new_date,count(new_date),crime.crimecodedescription
```

```
from report
```

```
inner join crime on report.crimecode=crime.crimecode
```

```
group by new_date,crimecodedescription
```

```
order by count(datereported) desc
```

```
limit 5 ;
```

**Q2: Return the number of reported crimes that their victim Descents are White 'W'.**

```
select count(year(new_date)),year(new_date)
from report R
inner join victim V on R.drnumber=V.drnumber
where victimdescent='W'
group by year(new_date)
order by count(year(new_date)) desc;
```

YEAR(new_date)	count(YEAR(new_date))
2013	1434
2010	1255
2011	9
2014	2

**Q3. Return top 5 number of the youngest male victims in each descent. Young men(less than 30 and more than 18 years old).**

```
select victimdescent,victimsex,count(victimage) as `numbers of young victim`  
from victim  
where (victimage<30 and victimage>18) and victimsex='M'  
group by victimdescent  
limit 5;
```

VictimDescent	VictimSex	numbers of young victim
H	M	2248
B	M	664
W	M	465
O	M	166
A	M	45

### Optimizing By CONSTRAINT(check) and INDEX

```
alter table victim add constraint victimage check(0 < victimage and victimage<=100);  
create index idx_age on victim (victimage);
```

```
select victimdescent,victimsex,count(victimage) as `numbers of young victim`  
from victim force index (idx_age)  
where (victimage<30 and victimage>18) and victimsex='M'  
group by victimdescent
```

**Q4: Return the number of crimes that happened in 2010 in West area.**

```
select datereported,count(year(new_date)),areaname
from report as r inner join area a on t.areaid=a.areaid
where a.areaname like '%west%' and year(new_date)=2010
group by year(new_date),areaname;
```

**Optimizing by VIEW and CONSTRAINT(unique)**

```
create or replace view total_crime as select * from report;
alter table area add constraint areaid unique (areaid);
```

```
select datereported,count(year(new_date)),areaname
from total_crime t inner join area a on t.areaid=a.areaid
where a.areaname like '%west%' and year(new_date)=2010
group by year(new_date),areaname;
```

DateReported	count(YEAR(new_date))	AreaName
12/2/2010	664	Southwest
1/9/2010	287	West Valley

**Q5: Return dates and places that kidnapping occurred and the age of victim and weapons were used.**

```
select dateoccurred,victimage,weapondescription,premisedescription as 'the place that kidnapping occurred'
from total_crime as T
inner join crime as c on T.crimecode=c.crimecode
inner join premise as p on p.premisecode=r.premisecode
inner join victim as v on T.drnumber=v.drnumber
inner join weapon as w on T.weaponusedcode=w.weaponusedcode
where c.crimecodedescription like '%kidnapping%'
order by dateoccurred ;
```

DateOccurred	VictimAge	WeaponDescription	the place that kidnapping occurred
1/1/2010	20	STRONG-ARM (HANDS, FIST, FEET OR BODILY FORCE)	STREET
1/11/2010	17	UNKNOWN WEAPON/OTHER WEAPON	STREET
1/11/2010	37	STRONG-ARM (HANDS, FIST, FEET OR BODILY FORCE)	STREET
1/13/2013	28	ROPE/LIGATURE	VEHICLE, PASSENGER/TRUCK
1/19/2010	47	STRONG-ARM (HANDS, FIST, FEET OR BODILY FORCE)	STREET
1/24/2013	23	HAND GUN	SIDEWALK
1/24/2013	27	HAND GUN	SIDEWALK

## Q6: crimes that offended in people less than 18 for years after 2014

```
select year(new_date) as year_report, crimecode
from report
where drnumber in ( select drnumber from victim where victimage <18 )
group by year_report,crimecode
having min(year_report)>=2014
order by year(new_date), count(crimecode) desc;
```

### Rewriting: subquery by using join function

```
select year(new_date) as year_report, crimecode
from report r
inner join victim v on r.drnumber = v.drnumber
where victimage <18
group by year_report,crimecode
having min(year_report)>=2014
order by year(new_date), count(crimecode) desc;
```

Year_Report	CrimeCode
2014	812
2014	821
2015	812
2016	821

## Q7: Return the type of Crimes and the Area that is happened in 2011 and NOT 2012

-- view of Crime table with Crime and Areald for the Crime of the 2011

```
select *
from Crimed2011 as C1
Where not exists (select *
from Crimed2012 as C2 where C1.CrimeCode = C2.CrimeCode );

create view Crimed2011(Crime, Area, CrimeCode) as
select CrimeCodeDescription, AreaName, R.CrimeCode
from Area as A inner join Report as R on A.AreaID = R.AreaID
inner join Crime as C on C.CrimeCode=R.CrimeCode
where year(new_date) = 2011;

create view Crimed2012(Crime, Area, CrimeCode) as
select CrimeCodeDescription, AreaName, R.CrimeCode
from Area as A inner join Report as R on A.AreaID = R.AreaID
Inner join Crime as C on C.CrimeCode=R.CrimeCode
where year(new_date) = 2012;
```

Crime	Area	CrimeCode
ATTEMPTED ROBBERY	West Valley	220
ATTEMPTED ROBBERY	Northeast	220
INTIMATE PARTNER - SIMPLE ASSAULT	Northeast	626
INTIMATE PARTNER - SIMPLE ASSAULT	77th Street	626
ASSAULT WITH DEADLY WEAPON, AGGRAVATED ASSAULT	77th Street	230
BATTERY - SIMPLE ASSAULT	77th Street	624
BATTERY - SIMPLE ASSAULT	77th Street	624
BATTERY - SIMPLE ASSAULT	77th Street	624
ATTEMPTED ROBBERY	77th Street	220
PIMPING	77th Street	805
ASSAULT WITH DEADLY WEAPON, AGGRAVATED ASSAULT	77th Street	230
ASSAULT WITH DEADLY WEAPON, AGGRAVATED ASSAULT	Newton	230
ASSAULT WITH DEADLY WEAPON, AGGRAVATED ASSAULT	Newton	230
BATTERY - SIMPLE ASSAULT	Newton	624
BURGLARY FROM VEHICLE	Pacific	330
CHILD ANNOYING (17YRS & UNDER)	N Hollywood	813
EXTORTION	Foothill	940
BATTERY - SIMPLE ASSAULT	Devonshire	624
BATTERY - SIMPLE ASSAULT	Southeast	624
THEFT-GRAND (\$950.01 & OVER)EXCPT,GUNS,FOWL,LIVESTK,PROD0036	Southeast	341
CRIMINAL THREATS - NO WEAPON DISPLAYED	Southeast	930
PIMPING	Southeast	805
THEFT, PERSON	Southeast	350
BATTERY - SIMPLE ASSAULT	Southeast	624
THEFT, PERSON	Southeast	350
BATTERY - SIMPLE ASSAULT	Southeast	624
SODOMY/SEXUAL CONTACT B/W PENIS OF ONE PERS TO ANUS OTH 0007=02	Southeast	821
BATTERY - SIMPLE ASSAULT	Mission	624
INTIMATE PARTNER - SIMPLE ASSAULT	Mission	626
CHILD ANNOYING (17YRS & UNDER)	Olympic	813
BATTERY - SIMPLE ASSAULT	Olympic	624
BATTERY - SIMPLE ASSAULT	Topanga	624
BATTERY - SIMPLE ASSAULT	Topanga	624



## Q7: Return the type of Crimes and the Area that is happened in 2011 and NOT 2012

```
select *
from Crimed2011 as a
left join Crimed2012 as b on a.CrimeCode = b.CrimeCode
where b.CrimeCode is null;
```

Crime	Area	CrimeCode	Crime	Area	CrimeCode
ATTEMPTED ROBBERY	West Valley	220	NULL	NULL	NULL
ATTEMPTED ROBBERY	Northeast	220	NULL	NULL	NULL
ATTEMPTED ROBBERY	77th Street	220	NULL	NULL	NULL
ASSAULT WITH DEADLY WEAPON, AGGRAVATED ASSAULT	Newton	230	NULL	NULL	NULL
ASSAULT WITH DEADLY WEAPON, AGGRAVATED ASSAULT	77th Street	230	NULL	NULL	NULL
ASSAULT WITH DEADLY WEAPON, AGGRAVATED ASSAULT	77th Street	230	NULL	NULL	NULL
ASSAULT WITH DEADLY WEAPON, AGGRAVATED ASSAULT	Newton	230	NULL	NULL	NULL
BURGLARY FROM VEHICLE	Pacific	330	NULL	NULL	NULL
THEFT-GRAND (\$950.01 & OVER)EXCPT,GUNS,FOWL,LIVESTK,PROD0036	Southeast	341	NULL	NULL	NULL
THEFT, PERSON	Southeast	350	NULL	NULL	NULL
THEFT, PERSON	Southeast	350	NULL	NULL	NULL
BATTERY - SIMPLE ASSAULT	77th Street	624	NULL	NULL	NULL
BATTERY - SIMPLE ASSAULT	77th Street	624	NULL	NULL	NULL
BATTERY - SIMPLE ASSAULT	77th Street	624	NULL	NULL	NULL
BATTERY - SIMPLE ASSAULT	Newton	624	NULL	NULL	NULL
BATTERY - SIMPLE ASSAULT	Devonshire	624	NULL	NULL	NULL
BATTERY - SIMPLE ASSAULT	Southeast	624	NULL	NULL	NULL
BATTERY - SIMPLE ASSAULT	Southeast	624	NULL	NULL	NULL
BATTERY - SIMPLE ASSAULT	Southeast	624	NULL	NULL	NULL
BATTERY - SIMPLE ASSAULT	Mission	624	NULL	NULL	NULL
BATTERY - SIMPLE ASSAULT	Olympic	624	NULL	NULL	NULL
BATTERY - SIMPLE ASSAULT	Topanga	624	NULL	NULL	NULL
BATTERY - SIMPLE ASSAULT	Topanga	624	NULL	NULL	NULL
INTIMATE PARTNER - SIMPLE ASSAULT	Northeast	626	NULL	NULL	NULL
INTIMATE PARTNER - SIMPLE ASSAULT	77th Street	626	NULL	NULL	NULL
INTIMATE PARTNER - SIMPLE ASSAULT	Mission	626	NULL	NULL	NULL
PIMPING	77th Street	805	NULL	NULL	NULL
PIMPING	Southeast	805	NULL	NULL	NULL
CHILD ANNOYING (17YRS & UNDER)	N Hollywood	813	NULL	NULL	NULL
CHILD ANNOYING (17YRS & UNDER)	Olympic	813	NULL	NULL	NULL
SODOMY/SEXUAL CONTACT B/W PENIS OF ONE PERS TO ANUS OTH 0007=02	Southeast	821	NULL	NULL	NULL
CRIMINAL THREATS - NO WEAPON DISPLAYED	Southeast	930	NULL	NULL	NULL
EXTORTION	Foothill	940	NULL	NULL	NULL

**Q8: return the victims, who are female or less than 18 for years in 2010-2017**

**Show the type of weapons that used most for these crimes**

```
(select year(R.new_date) as Year_Report, Avg (V.VictimAge), V.VictimSex , count(W.WeaponUsedCode),  
W.WeaponCodeDescription  
from Victim as V inner join Report as R on V.DRnumber = R.DRnumber  
inner join WEAPON as W on W.WeaponUsedCode = R.WeaponUsedCode  
where ( V.VictimAge < 18 or V.VictimSex = 'F' ) and year (R.new_date) = 2010  
group by Year_Report, V.VictimSex, W.WeaponUsedCode  
order by Year_Report, count(W.WeaponDescription) desc  
limit 2)
```

Union

```
(select year(R.new_date) as Year_Report, Avg (V.VictimAge), V.VictimSex , count(W.WeaponUsedCode),  
W.WeaponCodeDescription  
from Victim as V inner join Report as R on V.DRnumber = R.DRnumber  
inner join WEAPON as W on W.WeaponUsedCode = R.WeaponUsedCode  
where ( V.VictimAge <18 or V.VictimSex = 'F' ) and year (R.new_date) = 2011  
group by Year_Report, V.VictimSex, W.WeaponUsedCode  
order by Year_Report, count(W.WeaponDescription) desc  
limit 2);
```

**Q8: return the victims, who are female or less than 18 for years in 2010-2017**

**Show the type of weapons that used most for these crimes**

Year_Report	Avg(V.VictimAge)	VictimSex	count(W.WeaponUsedCode)	WeaponDescription
2010	30.7210	F	3254	STRONG-ARM (HANDS, FIST, FEET OR BODILY FORCE)
2010	14.9182	M	501	STRONG-ARM (HANDS, FIST, FEET OR BODILY FORCE)
2011	24.0000	F	43	STRONG-ARM (HANDS, FIST, FEET OR BODILY FORCE)
2011	15.0000	M	2	VERBAL THREAT
2012	18.6250	F	8	STRONG-ARM (HANDS, FIST, FEET OR BODILY FORCE)
2012	13.5000	M	2	STRONG-ARM (HANDS, FIST, FEET OR BODILY FORCE)
2013	31.2801	F	3128	STRONG-ARM (HANDS, FIST, FEET OR BODILY FORCE)
2013	14.5613	M	253	STRONG-ARM (HANDS, FIST, FEET OR BODILY FORCE)
2014	28.0000	F	2	STRONG-ARM (HANDS, FIST, FEET OR BODILY FORCE)
2014	32.0000	F	1	STICK
2015	10.5000	F	2	STRONG-ARM (HANDS, FIST, FEET OR BODILY FORCE)
2016	14.0000	M	1	UNKNOWN WEAPON/OTHER WEAPON
2017	22.0000	F	1	STRONG-ARM (HANDS, FIST, FEET OR BODILY FORCE)

**Q8: return the victims, who are female or less than 18 for years in 2010-2017**

**Show the type of weapons that used most for these crimes**

```
SET @ranking = 0, @prev_val = NULL;

select *,
@ranking:= if (@prev_val=Year_Report, @ranking+1, 1) as ranking , @prev_val := Year_Report
from
(select year(R.new_date) as Year_Report, Avg(V.Victimage), V.VictimSex , count(W.WeaponUsedCode),
W.WeaponDescription
from Victim as V
inner join Report as R on V.DRnumber = R.Drnumber
inner join WEAPON as W on W.WeaponUsedCode = R.WeaponUsedCode
where (V.Victimage < 18 or V.VictimSex = 'F')
group by Year_Report, V.VictimSex, W.WeaponUsedCode
order by Year_Report, count(W.WeaponDescription) desc) t
having ranking <= 2;
```

### Q9: crimes that happen more than 500 times in a year

```
select year(new_date), CrimeCodeDescription
from Crime C join Report R on C.CrimeCode = R.CrimeCode
group by year(R.new_date),CrimeCodeDescription
having count(C.CrimeCodeDescription)>500 ;
```

year(new_date)	CrimeCodeDescription
2013	INTIMATE PARTNER - SIMPLE ASSAULT
2013	ROBBERY
2013	ASSAULT WITH DEADLY WEAPON, AGGRAVATE...
2013	BATTERY - SIMPLE ASSAULT
2010	ROBBERY
2010	BATTERY - SIMPLE ASSAULT
2010	INTIMATE PARTNER - SIMPLE ASSAULT
2010	ASSAULT WITH DEADLY WEAPON, AGGRAVATE...

### Q10: return race of victims that be offended most in each area

```
select AreaName, max(VictimDescent)
from area as A
join Report as R on A.AreaID = R.AreaID
inner join Victim as V on R.DRnumber = V.DRnumber
group by AreaName;
```

AreaName	max(VictimDescent)
Central	X
Rampart	X
Southwest	X
Hollenbeck	X
Harbor	X
Hollywood	X
Wilshire	X
West LA	X
Van Nuys	W
West Valley	X
Northeast	W
77th Street	X

AreaName	max(VictimDescent)
Pacific	X
Rampart	X
Southeast	X
Southwest	X
Topanga	X
Van Nuys	W
West LA	X
West Valley	X
Wilshire	X