ACADGILD ASSIGNMENT - 12.1

1. Use the given link below:
https://archive.ics.uci.edu/ml/machine-learning-databases/communities/
Perform the below operations:
a. Find out top 5 attributes having highest correlation (select only Numeric features).
b. Find out top 3 reasons for having more crime in a city.
c. Which all attributes have high correlation with crime rate?

```
library(readxl)
communities_data_12th_assignment <-
read_excel("C:/Users/Veena/Desktop/communities data 12th assignment.xlsx")
View(communities_data_12th_assignment)
```

a. Find out top 5 attributes having highest correlation (select only Numeric features).

```
> library(readxl)
> communities_data_12th_assignment <- read_excel("C:/Users/Veena/Desktop/communiti
es data 12th assignment.xlsx")
```

```
library(Rcpp) data<-COBRA_YTD2017
data[4:10,3] <- rep(NA,7)
data[1:5,4] <- NA
data <- data[-c(5,6)]
summary(data)
## MI_PRINX offense_id rpt_date
## Min. :8838438 Min. :1.608e+08 7/26/2017 : 106
## 1st Qu.:8904204 1st Qu.:1.711e+08 10/16/2017: 103
## Median :8910894 Median :1.720e+08 11/1/2017 : 103
## Mean :8910851 Mean :6.523e+08 9/21/2017 : 101
## 3rd Qu.:8917584 3rd Qu.:1.728e+08 11/28/2017: 100
## Max. :8924410 Max. :1.730e+11 (Other) :26239
## NA's : 7
## occur_date poss_time beat apt_office_prefix
## 11/17/2017: 110 8:00:00 : 526 Min. :101.0 :26213
## 10/7/2017 : 106 7:00:00 : 430 1st Qu.:208.0 APT : 314
## 8/19/2017 : 105 12:00:00: 426 Median :312.0 STE : 25
## 10/28/2017: 102 10:00:00: 376 Mean :355.6 ROOM : 21
```

```
## 10/31/2017: 99 9:00:00 : 376 3rd Qu.:505.0 BLDG : 12
## (Other) :26232 16:00:00: 375 Max. :710.0 UNIT : 12
## NA's : 5 (Other) :24250 (Other): 162
## apt_office_num location
## :22133 1801 HOWELL MILL RD NW : 142
## A : 120 3393 PEACHTREE RD NE @LENOX MALL : 140
## B : 108 1275 CAROLINE ST NE @TARGET - CAROLINE : 136
## 1 : 61 3393 PEACHTREE RD NE : 129
## 2 : 48 835 MARTIN L KING JR DR NW : 108
## 5 : 46 2841 GREENBRIAR PKWY SW @GREENBRIAR MALL: 95
## (Other): 4243 (Other) :26009
## MinOfucr MinOfibr_code dispo_code MaxOfnum_victims
## Min. :110.0 2305 :9024 :22959 Min. : 0.00
## 1st Qu.:521.0 2404 :2774 10 : 2893 1st Qu.: 1.00
## Median :640.0 2303 :2486 20 : 632 Median : 1.00
## Mean :598.8 2399 :1946 30 : 210 Mean : 1.16
## 3rd Qu.:660.0 2202 :1802 40 : 36 3rd Qu.: 1.00
## Max. :730.0 2308 :1381 60 : 20 Max. :27.00
## (Other):7346 (Other): 9 NA's :75
## Shift Avg.Day loc_type UC2.Literal
## Day :6882 Sat :3713 Min. : 1.00 LARCENY-FROM VEHICLE:9840
## Eve :9151 Sun :3569 1st Qu.:13.00 LARCENY-NON VEHICLE :6589
## Morn:7014 Tue :3542 Median :18.00 AUTO THEFT :3197
## Unk :3712 Wed :3539 Mean :20.76 BURGLARY-RESIDENCE :2635
## Mon :3492 3rd Qu.:20.00 AGG ASSAULT :2024
## Thu :3455 Max. :99.00 ROBBERY-PEDESTRIAN :1126
## (Other):5449 NA's :3344 (Other) :1348
## neighborhood npu x
## Downtown : 1828 M : 3077 Min. :-84.55
## Midtown : 1410 E : 2742 1st Qu.:-84.43
## : 1185 B : 2716 Median :-84.40
## Old Fourth Ward : 697 D : 1281 Mean :-83.69
## Lindbergh/Morosgo: 595 V : 1281 3rd Qu.:-84.37
## West End : 571 T : 1140 Max. : 0.00
## (Other) :20473 (Other):14522
## y ## Min. : 0.00
## 1st Qu.:33.73
## Median :33.76
## Mean :33.47
## 3rd Qu.:33.79
## Max. :33.88
## str(COBRA_YTD2017)
## 'data.frame': 26759 obs. of 23 variables:
## $ MI_PRINX : int 8924155 8924156 8924157 8924158 8924159 8924160 8924161 8924162 8924163 8924164 ...
## $ offense_id : num 1.74e+08 1.74e+08 1.74e+08 1.74e+08 1.74e+08 ...
## $ rpt_date : Factor w/ 365 levels "1/1/2017","1/10/2017",..: 117 117 117 117 117 117 117 117 1
```

17 117 ...

```
## $ occur_date : Factor w/ 471 levels "1/1/2008","1/1/2015",..: 174 145 174 174 176 174 176 176 174 176 ...
## $ occur_time : Factor w/ 1355 levels "","0:00:00","0:01:00",..: 955 290 883 763 43 940 112 2 2 2 ...
## $ poss_date : Factor w/ 412 levels "1/1/2015","1/1/2017",..: 147 145 147 147 147 147 147 147 147 147 ...
## $ poss_time : Factor w/ 1434 levels "","0:00:00","0:01:00",..: 32 902 62 68 50 88 121 722 1024 1056 ...
## $ beat : int 510 501 303 507 409 612 605 603 605 304 ...
## $ apt_office_prefix: Factor w/ 88 levels "","#8","1","10",..: 1 1 1 1 1 1 1 1 1 1 ...
## $ apt_office_num : Factor w/ 2044 levels "","#5","]","`",..: 1 1 1 1 1 1 213 1 1 1372 ...
## $ location : Factor w/ 13865 levels ": 565 Main St NE",..: 9394 1133 10955 7860 5557 1525 8250 9706 9456 455 ...
## $ MinOfucr : int 640 640 640 640 640 650 311 640 640 531 ...
## $ MinOfibr_code : Factor w/ 68 levels "","1101","1101A",..: 51 51 51 51 51 50 30 51 51 42 ...
## $ dispo_code : Factor w/ 8 levels "","10","20","30",..: 1 1 1 1 1 1 1 1 1 1 ...
## $ MaxOfnum_victims : int 2 1 1 1 2 1 1 1 1 1 ...
## $ Shift : Factor w/ 4 levels "Day","Eve","Morn",..: 3 4 3 2 3 3 3 3 4 3 ...
## $ Avg.Day : Factor w/ 8 levels "Fri","Mon","Sat",..: 3 7 3 3 4 4 4 4 3 4 ...
## $ loc_type : int 13 13 18 18 18 18 26 18 13 26 ...
## $ UC2.Literal : Factor w/ 11 levels "AGG ASSAULT",..: 6 6 6 6 6 6 10 6 6 4 ...
## $ neighborhood : Factor w/ 239 levels "","Adair Park",..: 80 117 145 64 3 83 103 164 103 175 ...
## $ npu : Factor w/ 26 levels "","A","B","C",..: 14 6 22 14 19 23 23 14 23 22 ...
## $ x : num -84.4 -84.4 -84.4 -84.4 -84.5 ...
## $ y : num 33.8 33.8 33.7 33.8 33.7 ...
library(car)
## Loading required package: carData fit<-lm(beat~MinOfucr+ MaxOfnum_victims+loc_type+neighborhood+x+y,data =COBRA_YTD2017) fit
##
## Call:
## lm(formula = beat ~ MinOfucr + MaxOfnum_victims + loc_type +
## neighborhood + x + y, data = COBRA_YTD2017)
##
## Coefficients:
## (Intercept)
## 3.088e+02
## MinOfucr
## 2.221e-02
## MaxOfnum_victims
## -2.153e-01
## loc_type
## -1.020e-01
## neighborhoodAdair Park
## -5.594e+01
## neighborhoodAdams Park
## -1.071e+01
```

```
## neighborhoodAdamsville
## -1.072e+02
## neighborhoodAlmond Park
## -1.922e+02
## neighborhoodAmal Heights
## -8.001e+01
## neighborhoodAnsley Park
## 2.682e+02
## neighborhoodArden/Habersham
## 3.451e+01
## neighborhoodArdmore
## -1.492e+01
## neighborhoodArgonne Forest
## 3.535e+01
## neighborhoodArlington Estates
## -9.771e+01
## neighborhoodAshley Courts
## -4.434e+01
## neighborhoodAshview Heights
## -2.293e+02
## neighborhoodAtkins Park
## 3.590e+02
## neighborhoodAtlanta Industrial Park
## -1.911e+02
## neighborhoodAtlanta University Center
## -2.148e+02
## neighborhoodAtlantic Station
## 2.518e+02
## neighborhoodAudobon Forest
## 4.003e+00
## neighborhoodAudobon Forest West
## -1.011e+01
## neighborhoodBaker Hills
## 2.365e+01
## neighborhoodBakers Ferry
## 3.247e+00
## neighborhoodBankhead
## -1.978e+02
## neighborhoodBankhead/Bolton
## -2.120e+02
## neighborhoodBeecher Hills
## 1.716e+01
## neighborhoodBen Hill
## -1.239e+02
## neighborhoodBen Hill Acres
## -8.011e+01
## neighborhoodBen Hill Forest
```

```
## -1.018e+02
## neighborhoodBen Hill Pines
## -9.275e+01
## neighborhoodBen Hill Terrace
## -7.799e+01
## neighborhoodBenteen Park
## 2.536e+02
## neighborhoodBerkeley Park
## -3.422e+01
## neighborhoodBetmar LaVilla
## -8.306e+01
## neighborhoodBlair Villa/Poole Creek
## -1.533e+02
## neighborhoodBlandtown
## -5.819e+01
## neighborhoodBolton
## -3.747e+01
## neighborhoodBolton Hills
## -1.732e+02
## neighborhoodBoulder Park
## -2.017e+00
## neighborhoodBoulevard Heights
## 2.708e+02
## neighborhoodBrandon
## -5.773e+00
## neighborhoodBrentwood
## -1.044e+02
## neighborhoodBriar Glen
## -6.678e+01
## neighborhoodBrookhaven
## 1.103e+02
## neighborhoodBrookview Heights
## -2.056e+02
## neighborhoodBrookwood
## -1.984e+01
## neighborhoodBrookwood Hills
## -1.158e+01
## neighborhoodBrowns Mill Park
## -1.083e+02
## neighborhoodBuckhead Forest
## 6.822e+01
## neighborhoodBuckhead Heights
## 8.416e+01
## neighborhoodBuckhead Village
## 5.630e+01
## neighborhoodBush Mountain
## 2.443e+01
```

```
## neighborhoodButner/Tell
## -1.055e+02
## neighborhoodCabbagetown
## 3.089e+02
## neighborhoodCampbellton Road
## -2.648e+01
## neighborhoodCandler Park
## 3.534e+02
## neighborhoodCapitol Gateway
## 2.862e+02
## neighborhoodCapitol View
## -8.205e+01
## neighborhoodCapitol View Manor
## -7.716e+01
## neighborhoodCarey Park
## -1.900e+02
## neighborhoodCarroll Heights
## -2.290e+02
## neighborhoodCarver Hills
## -1.664e+02
## neighborhoodCascade Avenue/Road
## 1.491e+01
## neighborhoodCascade Green
## -3.778e+01
## neighborhoodCascade Heights
## -1.374e+01
## neighborhoodCastleberry Hill
## 1.847e+02
## neighborhoodCastlewood
## 2.267e+01
## neighborhoodCenter Hill
## -2.125e+02
## neighborhoodChalet Woods
## 3.127e+01
## neighborhoodChanning Valley
## -2.311e+01
## neighborhoodChastain Park
## 9.584e+01
## neighborhoodChosewood Park
## -4.798e+01
## neighborhoodCollier Heights
## -2.200e+02
## neighborhoodCollier Hills
## -1.576e+01
## neighborhoodCollier Hills North
## -7.174e+00
## neighborhoodColonial Homes
```

```
## -1.751e+00
## neighborhoodCross Creek
## -1.726e+01
## neighborhoodCuster/McDonough/Guice
## 2.544e+02
## neighborhoodDeerwood
## -9.579e+01
## neighborhoodDixie Hills
## -2.329e+02
## neighborhoodDowntown
## 2.113e+02
## neighborhoodDruid Hills
## 3.727e+02
## neighborhoodEast Ardley Road
## -1.065e+01
## neighborhoodEast Atlanta
## 3.081e+02
## neighborhoodEast Chastain Park
## 1.171e+02
## neighborhoodEast Lake
## 3.528e+02
## neighborhoodEdgewood
## 3.384e+02
## neighborhoodElmco Estates
## -9.468e+01
## neighborhoodEnglish Avenue
## -1.822e+02
## neighborhoodEnglish Park
## -1.962e+02
## neighborhoodFairburn
## -8.784e+01
## neighborhoodFairburn Heights
## -2.392e+02
## neighborhoodFairburn Mays
## -2.608e-01
## neighborhoodFairburn Road/Wisteria Lane
## 1.013e+01
## neighborhoodFairburn Tell
## -9.799e+01
## neighborhoodFairway Acres
## -1.051e+02
## neighborhoodFernleaf
## -2.435e+01
## neighborhoodFlorida Heights
## -1.341e+02
## neighborhoodFort McPherson
## -1.178e+00
```

```
## neighborhoodFort Valley
## -1.903e+01
## neighborhoodGarden Hills
## 4.575e+01
## neighborhoodGeorgia Tech
## 2.323e+02
## neighborhoodGlenrose Heights
## -1.316e+02
## neighborhoodGrant Park
## 2.886e+02
## neighborhoodGreen Acres Valley
## -1.467e+01
## neighborhoodGreen Forest Acres
## -8.231e+00
## neighborhoodGreenbriar
## -8.013e+01
## neighborhoodGreenbriar Village
## -7.815e+01
## neighborhoodGrove Park
## -2.037e+02
## neighborhoodHammond Park
## -1.334e+02
## neighborhoodHanover West
## -1.605e+01
## neighborhoodHarland Terrace
## 3.398e+00
## neighborhoodHarris Chiles
## -2.319e+02
## neighborhoodHarvel Homes Community
## -2.362e+02
## neighborhoodHeritage Valley
## -5.375e+01
## neighborhoodHigh Point
## -6.895e+01
## neighborhoodHills Park
## -5.258e+01
## neighborhoodHome Park
## 2.364e+02
## neighborhoodHorseshoe Community
## -2.681e+01
## neighborhoodHunter Hills
## -2.145e+02
## neighborhoodHuntington
## -1.373e+02
## neighborhoodInman Park
## 3.329e+02
## neighborhoodIvan Hill
```

```
## 1.963e+01
## neighborhoodJoyland
## -7.231e+01
## neighborhoodJust Us
## -2.265e+02
## neighborhoodKings Forest
## -7.272e+01
## neighborhoodKingswood
## 4.664e+01
## neighborhoodKirkwood
## 3.499e+02
## neighborhoodKnight Park/Howell Station
## -1.739e+02
## neighborhoodLake Claire
## 3.634e+02
## neighborhoodLake Estates
## -1.091e+02
## neighborhoodLakewood
## -8.625e+01
## neighborhoodLakewood Heights
## -7.485e+01
## neighborhoodLaurens Valley
## -3.553e+01
## neighborhoodLeila Valley
## -8.211e+01
## neighborhoodLenox
## 8.408e+01
## neighborhoodLincoln Homes
## -1.737e+02
## neighborhoodLindbergh/Morosgo
## 4.112e+01
## neighborhoodLindridge/Martin Manor
## 4.212e+01
## neighborhoodLoring Heights
## -3.741e+01
## neighborhoodMagnum Manor
## -1.892e+01
## neighborhoodMargaret Mitchell
## -3.024e+00
## neighborhoodMarietta Street Artery
## 2.257e+02
## neighborhoodMays
## 8.219e+00
## neighborhoodMeadowbrook Forest
## -7.720e+01
## neighborhoodMechanicsville
## -3.398e+01
```

```
## neighborhoodMellwood
## -2.445e+02
## neighborhoodMemorial Park
## -4.356e+00
## neighborhoodMidtown
## 2.483e+02
## neighborhoodMidwest Cascade
## -3.968e+01
## neighborhoodMonroe Heights
## -1.826e+02
## neighborhoodMorningside/Lenox Park
## 1.177e+01
## neighborhoodMozley Park
## -2.374e+02
## neighborhoodMt. Gilead Woods
## -6.112e+01
## neighborhoodMt. Paran Parkway
## 8.077e+01
## neighborhoodMt. Paran/Northside
## 7.260e+01
## neighborhoodNiskey Cove
## -6.749e+01
## neighborhoodNiskey Lake
## -5.861e+01
## neighborhoodNorth Buckhead
## 8.552e+01
## neighborhoodNorwood Manor
## -7.743e+01
## neighborhoodOakcliff
## -2.579e+02
## neighborhoodOakland
## 2.976e+02
## neighborhoodOakland City
## 1.604e+01
## neighborhoodOld Fairburn Village
## -4.514e+01
## neighborhoodOld Fourth Ward
## 3.293e+02
## neighborhoodOld Gordon
## -2.503e+02
## neighborhoodOrchard Knob
## -1.258e+02
## neighborhoodOrmewood Park
## 2.985e+02
## neighborhoodPaces
## 2.661e+01
## neighborhoodPeachtree Battle Alliance
```

```
## 6.536e+00
## neighborhoodPeachtree Heights East
## 3.028e+01
## neighborhoodPeachtree Heights West
## 4.196e+01
## neighborhoodPeachtree Hills
## 2.127e+01
## neighborhoodPeachtree Park
## 6.859e+01
## neighborhoodPenelope Neighbors
## -2.376e+02
## neighborhoodPeoplestown
## -4.417e+01
## neighborhoodPerkerson
## -1.263e+02
## neighborhoodPeyton Forest
## 2.126e+01
## neighborhoodPiedmont Heights
## 7.225e+00
## neighborhoodPine Hills
## 6.717e+01
## neighborhoodPittsburgh
## -5.171e+01
## neighborhoodPleasant Hill
## 3.884e+01
## neighborhoodPolar Rock
## -9.784e+01
## neighborhoodPomona Park
## -1.539e+01
## neighborhoodPoncey-Highland
## 3.494e+02
## neighborhoodPrinceton Lakes
## -1.367e+02
## neighborhoodRandall Mill
## 3.644e+01
## neighborhoodRebel Valley Forest
## -8.822e+01
## neighborhoodReynoldstown
## 3.229e+02
## neighborhoodRidgecrest Forest
## -3.635e-01
## neighborhoodRidgedale Park
## 9.914e+01
## neighborhoodRidgewood Heights
## -2.189e+01
## neighborhoodRiverside
## -6.176e+01
```

```
## neighborhoodRockdale
## -1.745e+02
## neighborhoodRosedale Heights
## -1.086e+02
## neighborhoodRue Royal
## -8.399e+01
## neighborhoodSandlewood Estates
## -8.392e+01
## neighborhoodScotts Crossing
## -1.555e+02
## neighborhoodSherwood Forest
## 2.850e+02
## neighborhoodSouth Atlanta
## -5.961e+01
## neighborhoodSouth River Gardens
## -1.296e+02
## neighborhoodSouth Tuxedo Park
## 5.620e+01
## neighborhoodSouthwest
## -5.395e+01
## neighborhoodSpringlake
## -1.311e+01
## neighborhoodSummerhill
## -2.700e+01
## neighborhoodSwallow Circle/Baywood
## -9.609e+01
## neighborhoodSweet Auburn
## 3.076e+02
## neighborhoodSylvan Hills
## -1.025e+02
## neighborhoodTampa Park
## -1.020e+02
## neighborhoodThe Villages at Carver
## -6.709e+01
## neighborhoodThe Villages at Castleberry H
## -2.192e+02
## neighborhoodThe Villages at East Lake
## 3.413e+02
## neighborhoodThomasville Heights
## -5.676e+01
## neighborhoodTuxedo Park
## 7.015e+01
## neighborhoodUnderwood Hills
## -3.568e+01
## neighborhoodVenetian Hills
## 2.570e+00
## neighborhoodVine City
```

```
## -2.103e+02
## neighborhoodVirginia Highland
## 3.581e+02
## neighborhoodWashington Park
## -2.107e+02
## neighborhoodWesley Battle
## -7.726e+00
## neighborhoodWest End
## 3.430e+01
## neighborhoodWest Highlands
## -1.699e+02
## neighborhoodWest Lake
## -2.236e+02
## neighborhoodWest Manor
## -1.777e+00
## neighborhoodWest Paces Ferry/Northside
## 4.484e+01
## neighborhoodWesthaven
## -2.468e+02
## neighborhoodWestminster/Milmar
## 1.349e+01
## neighborhoodWestover Plantation
## -1.964e+01
## neighborhoodWestview
## 4.217e+01
## neighborhoodWestwood Terrace
## 3.232e+01
## neighborhoodWhitewater Creek
## 6.154e+01
## neighborhoodWhittier Mill Village
## -6.355e+01
## neighborhoodWildwood (NPU-C)
## -2.229e+01
## neighborhoodWildwood (NPU-H)
## 7.433e-01
## neighborhoodWildwood Forest
## -1.140e+02
## neighborhoodWilson Mill Meadows
## 1.149e+01
## neighborhoodWisteria Gardens
## 2.528e+01
## neighborhoodWoodfield
## 1.398e+00

## neighborhoodWoodland Hills
## 2.733e+02
## neighborhoodWyngate
```

```
## 2.482e+01
## x
## -6.831e+02
## y
## -1.708e+03

summary(fit)

##
## Call:
## lm(formula = beat ~ MinOfucr + MaxOfnum_victims + loc_type +
## neighborhood + x + y, data = COBRA_YTD2017)
##
## Residuals:
## Min 1Q Median 3Q Max
## -529.44 -5.40 0.22 6.06 414.65
##
## Coefficients:
## Estimate Std. Error t value
## (Intercept) 3.088e+02 3.606e+00 85.642
## MinOfucr 2.221e-02 2.590e-03 8.575
## MaxOfnum_victims -2.153e-01 3.911e-01 -0.550
## loc_type -1.020e-01 1.629e-02 -6.258
## neighborhoodAdair Park -5.594e+01 3.485e+00 -16.050
## neighborhoodAdams Park -1.071e+01 5.388e+00 -1.988
## neighborhoodAdamsville -1.072e+02 3.165e+00 -33.883
## neighborhoodAlmond Park -1.922e+02 6.025e+00 -31.892
## neighborhoodAmal Heights -8.001e+01 8.495e+00 -9.419
## neighborhoodAnsley Park 2.682e+02 5.615e+00 47.761
## neighborhoodArden/Habersham 3.451e+01 1.775e+01 1.945
## neighborhoodArdmore -1.492e+01 7.784e+00 -1.917
## neighborhoodArgonne Forest 3.535e+01 1.409e+01 2.509
## neighborhoodArlington Estates -9.771e+01 8.997e+00 -10.860
## neighborhoodAshley Courts -4.434e+01 6.127e+00 -7.237
## neighborhoodAshview Heights -2.293e+02 3.854e+00 -59.512
## neighborhoodAtkins Park 3.590e+02 2.281e+01 15.739
## neighborhoodAtlanta Industrial Park -1.911e+02 8.154e+00 -23.430
## neighborhoodAtlanta University Center -2.148e+02 4.086e+00 -52.588
## neighborhoodAtlantic Station 2.518e+02 3.440e+00 73.210
## neighborhoodAudobon Forest 4.003e+00 9.935e+00 0.403
## neighborhoodAudobon Forest West -1.011e+01 1.495e+01 -0.676
## neighborhoodBaker Hills 2.365e+01 7.551e+00 3.132
## neighborhoodBakers Ferry 3.247e+00 1.767e+01 0.184
## neighborhoodBankhead -1.978e+02 3.669e+00 -53.917
## neighborhoodBankhead/Bolton -2.120e+02 9.131e+00 -23.220
## neighborhoodBeecher Hills 1.716e+01 1.100e+01 1.560
## neighborhoodBen Hill -1.239e+02 6.952e+00 -17.828
```

```
## neighborhoodBen Hill Acres -8.011e+01 8.061e+00 -9.938
## neighborhoodBen Hill Forest -1.018e+02 2.793e+01 -3.644
## neighborhoodBen Hill Pines -9.275e+01 1.619e+01 -5.730
## neighborhoodBen Hill Terrace -7.799e+01 7.388e+00 -10.557
## neighborhoodBenteen Park 2.536e+02 6.511e+00 38.959
## neighborhoodBerkeley Park -3.422e+01 2.867e+00 -11.937
## neighborhoodBetmar LaVilla -8.306e+01 5.885e+00 -14.114
## neighborhoodBlair Villa/Poole Creek -1.533e+02 5.487e+00 -27.930
## neighborhoodBlandtown -5.819e+01 3.137e+00 -18.548
## neighborhoodBolton -3.747e+01 4.300e+00 -8.715
## neighborhoodBolton Hills -1.732e+02 1.615e+01 -10.724
## neighborhoodBoulder Park -2.017e+00 1.614e+01 -0.125
## neighborhoodBoulevard Heights 2.708e+02 6.281e+00 43.112
## neighborhoodBrandon -5.773e+00 1.153e+01 -0.501
## neighborhoodBrentwood -1.044e+02 1.501e+01 -6.955
## neighborhoodBriar Glen -6.678e+01 1.617e+01 -4.130
## neighborhoodBrookhaven 1.103e+02 1.273e+01 8.662
## neighborhoodBrookview Heights -2.056e+02 7.693e+00 -26.727
## neighborhoodBrookwood -1.984e+01 7.172e+00 -2.766
## neighborhoodBrookwood Hills -1.158e+01 6.011e+00 -1.927
## neighborhoodBrowns Mill Park -1.083e+02 3.911e+00 -27.692
## neighborhoodBuckhead Forest 6.822e+01 3.968e+00 17.195
## neighborhoodBuckhead Heights 8.416e+01 6.912e+00 12.176
## neighborhoodBuckhead Village 5.630e+01 3.787e+00 14.866
## neighborhoodBush Mountain 2.443e+01 8.318e+00 2.937
## neighborhoodButner/Tell -1.055e+02 2.283e+01 -4.622
## neighborhoodCabbagetown 3.089e+02 5.968e+00 51.762
## neighborhoodCampbellton Road -2.648e+01 3.154e+00 -8.394
## neighborhoodCandler Park 3.534e+02 3.686e+00 95.885
## neighborhoodCapitol Gateway 2.862e+02 6.367e+00 44.945
## neighborhoodCapitol View -8.205e+01 3.850e+00 -21.314
## neighborhoodCapitol View Manor -7.716e+01 8.688e+00 -8.880
## neighborhoodCarey Park -1.900e+02 4.688e+00 -40.532
## neighborhoodCarroll Heights -2.290e+02 6.685e+00 -34.257
## neighborhoodCarver Hills -1.664e+02 7.586e+00 -21.934
## neighborhoodCascade Avenue/Road 1.491e+01 3.650e+00 4.084
## neighborhoodCascade Green -3.778e+01 1.616e+01 -2.338
## neighborhoodCascade Heights -1.374e+01 4.688e+00 -2.932
## neighborhoodCastleberry Hill 1.847e+02 2.698e+00 68.487
## neighborhoodCastlewood 2.267e+01 1.621e+01 1.398
## neighborhoodCenter Hill -2.125e+02 3.223e+00 -65.940
## neighborhoodChalet Woods 3.127e+01 1.974e+01 1.584
## neighborhoodChanning Valley -2.311e+01 7.515e+00 -3.075
## neighborhoodChastain Park 9.584e+01 8.971e+00 10.684
## neighborhoodChosewood Park -4.798e+01 4.335e+00 -11.068
## neighborhoodCollier Heights -2.200e+02 2.884e+00 -76.292
## neighborhoodCollier Hills -1.576e+01 1.107e+01 -1.424
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neighborhoodCollier Hills North -7.174e+00 2.793e+01 -0.257
neighborhoodColonial Homes -1.751e+00 1.772e+01 -0.099
neighborhoodCross Creek -1.726e+01 9.716e+00 -1.776
neighborhoodCuster/McDonough/Guice 2.544e+02 4.403e+00 57.784
neighborhoodDeerwood -9.579e+01 9.218e+00 -10.392
neighborhoodDixie Hills -2.329e+02 4.114e+00 -56.621
neighborhoodDowntown 2.113e+02 1.675e+00 126.187
neighborhoodDruid Hills 3.727e+02 7.058e+00 52.809
neighborhoodEast Ardley Road -1.065e+01 2.279e+01 -0.467
neighborhoodEast Atlanta 3.081e+02 2.643e+00 116.587
neighborhoodEast Chastain Park 1.171e+02 7.042e+00 16.635
neighborhoodEast Lake 3.528e+02 3.620e+00 97.446
neighborhoodEdgewood 3.384e+02 2.413e+00 140.246
neighborhoodElmco Estates -9.468e+01 1.001e+01 -9.454
neighborhoodEnglish Avenue -1.822e+02 2.800e+00 -65.058
neighborhoodEnglish Park -1.962e+02 9.647e+00 -20.340
neighborhoodFairburn -8.784e+01 8.072e+00 -10.882
neighborhoodFairburn Heights -2.392e+02 5.658e+00 -42.277
neighborhoodFairburn Mays -2.608e-01 4.187e+00 -0.062
neighborhoodFairburn Road/Wisteria Lane 1.013e+01 1.495e+01 0.677
neighborhoodFairburn Tell -9.799e+01 3.945e+01 -2.484
neighborhoodFairway Acres -1.051e+02 1.619e+01 -6.490
neighborhoodFernleaf -2.435e+01 1.618e+01 -1.505
neighborhoodFlorida Heights -1.341e+02 4.629e+00 -28.959
neighborhoodFort McPherson -1.178e+00 2.790e+01 -0.042
neighborhoodFort Valley -1.903e+01 6.628e+00 -2.871
neighborhoodGarden Hills 4.575e+01 4.233e+00 10.810
neighborhoodGeorgia Tech 2.323e+02 2.791e+01 8.325
neighborhoodGlenrose Heights -1.316e+02 3.279e+00 -40.127
neighborhoodGrant Park 2.886e+02 2.533e+00 113.945
neighborhoodGreen Acres Valley -1.467e+01 1.768e+01 -0.830
neighborhoodGreen Forest Acres -8.231e+00 1.400e+01 -0.588
neighborhoodGreenbriar -8.013e+01 2.670e+00 -30.016
neighborhoodGreenbriar Village -7.815e+01 1.404e+01 -5.568
neighborhoodGrove Park -2.037e+02 2.677e+00 -76.086
neighborhoodHammond Park -1.334e+02 3.487e+00 -38.266
neighborhoodHanover West -1.605e+01 1.771e+01 -0.906
neighborhoodHarland Terrace 3.398e+00 3.053e+00 1.113
neighborhoodHarris Chiles -2.319e+02 5.321e+00 -43.571
neighborhoodHarvel Homes Community -2.362e+02 2.790e+01 -8.467
neighborhoodHeritage Valley -5.375e+01 9.971e+00 -5.391
neighborhoodHigh Point -6.895e+01 9.639e+00 -7.153
neighborhoodHills Park -5.258e+01 4.836e+00 -10.874
neighborhoodHome Park 2.364e+02 2.476e+00 95.492
neighborhoodHorseshoe Community -2.681e+01 2.790e+01 -0.961
neighborhoodHunter Hills -2.145e+02 3.777e+00 -56.789
neighborhoodHuntington -1.373e+02 2.285e+01 -6.008

```
## neighborhoodInman Park 3.329e+02 2.612e+00 127.487
## neighborhoodIvan Hill 1.963e+01 1.252e+01 1.567
## neighborhoodJoyland -7.231e+01 7.081e+00 -10.211
## neighborhoodJust Us -2.265e+02 3.943e+01 -5.744
## neighborhoodKings Forest -7.272e+01 5.710e+00 -12.736
## neighborhoodKingswood 4.664e+01 2.795e+01 1.668
## neighborhoodKirkwood 3.499e+02 3.518e+00 99.454
## neighborhoodKnight Park/Howell Station -1.739e+02 7.008e+00 -24.816
## neighborhoodLake Claire 3.634e+02 5.913e+00 61.455
## neighborhoodLake Estates -1.091e+02 3.947e+01 -2.764
## neighborhoodLakewood -8.625e+01 6.602e+00 -13.064
## neighborhoodLakewood Heights -7.485e+01 2.594e+00 -28.855
## neighborhoodLaurens Valley -3.553e+01 2.790e+01 -1.273
## neighborhoodLeila Valley -8.211e+01 6.008e+00 -13.666
## neighborhoodLenox 8.408e+01 3.095e+00 27.168
## neighborhoodLincoln Homes -1.737e+02 8.004e+00 -21.695
## neighborhoodLindbergh/Morosgo 4.112e+01 2.714e+00 15.147
## neighborhoodLindridge/Martin Manor 4.212e+01 3.498e+00 12.041
## neighborhoodLoring Heights -3.741e+01 3.625e+00 -10.321
## neighborhoodMagnum Manor -1.892e+01 1.321e+01 -1.433
## neighborhoodMargaret Mitchell -3.024e+00 1.620e+01 -0.187
## neighborhoodMarietta Street Artery 2.257e+02 3.741e+00 60.326
## neighborhoodMays 8.219e+00 5.288e+00 1.554
## neighborhoodMeadowbrook Forest -7.720e+01 1.200e+01 -6.434
## neighborhoodMechanicsville -3.398e+01 2.337e+00 -14.540
## neighborhoodMellwood -2.445e+02 2.792e+01 -8.758
## neighborhoodMemorial Park -4.356e+00 2.793e+01 -0.156
## neighborhoodMidtown 2.483e+02 1.929e+00 128.724
## neighborhoodMidwest Cascade -3.968e+01 6.914e+00 -5.739
## neighborhoodMonroe Heights -1.826e+02 6.535e+00 -27.947
## neighborhoodMorningside/Lenox Park 1.177e+01 2.927e+00 4.023
## neighborhoodMozley Park -2.374e+02 4.292e+00 -55.304
## neighborhoodMt. Gilead Woods -6.112e+01 1.498e+01 -4.080
## neighborhoodMt. Paran Parkway 8.077e+01 3.949e+01 2.046
## neighborhoodMt. Paran/Northside 7.260e+01 9.851e+00 7.370
## neighborhoodNiskey Cove -6.749e+01 2.791e+01 -2.418
## neighborhoodNiskey Lake -5.861e+01 1.977e+01 -2.965
## neighborhoodNorth Buckhead 8.552e+01 3.131e+00 27.315
## neighborhoodNorwood Manor -7.743e+01 6.433e+00 -12.036
## neighborhoodOakcliff -2.579e+02 1.495e+01 -17.252
## neighborhoodOakland 2.976e+02 8.700e+00 34.202
## neighborhoodOakland City 1.604e+01 2.971e+00 5.398
## neighborhoodOld Fairburn Village -4.514e+01 3.944e+01 -1.145
## neighborhoodOld Fourth Ward 3.293e+02 2.142e+00 153.720
## neighborhoodOld Gordon -2.503e+02 8.688e+00 -28.811
## neighborhoodOrchard Knob -1.258e+02 6.902e+00 -18.222
## neighborhoodOrmewood Park 2.985e+02 3.582e+00 83.338
```

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## neighborhoodPaces                          2.661e+01  8.001e+00   3.326
## neighborhoodPeachtree Battle Alliance       6.536e+00  1.109e+01   0.589
## neighborhoodPeachtree Heights East          3.028e+01  1.112e+01   2.722
## neighborhoodPeachtree Heights West          4.196e+01  4.710e+00   8.907
## neighborhoodPeachtree Hills                 2.127e+01  5.958e+00   3.570
## neighborhoodPeachtree Park                  6.859e+01  5.270e+00  13.015
## neighborhoodPenelope Neighbors             -2.376e+02  1.145e+01 -20.752
## neighborhoodPeoplestown                    -4.417e+01  3.498e+00 -12.628
## neighborhoodPerkerson                      -1.263e+02  3.072e+00 -41.123
## neighborhoodPeyton Forest                   2.126e+01  1.252e+01   1.698
## neighborhoodPiedmont Heights                7.225e+00  3.350e+00   2.157
## neighborhoodPine Hills                      6.717e+01  4.197e+00  16.003
## neighborhoodPittsburgh                     -5.171e+01  2.691e+00 -19.219
## neighborhoodPleasant Hill                   3.884e+01  1.776e+01   2.188
## neighborhoodPolar Rock                     -9.784e+01  7.311e+00 -13.382
## neighborhoodPomona Park                    -1.539e+01  2.791e+01  -0.551
## neighborhoodPoncey-Highland                 3.494e+02  3.385e+00 103.210
## neighborhoodPrinceton Lakes                -1.367e+02  2.929e+00 -46.686
## neighborhoodRandall Mill                    3.644e+01  7.389e+00   4.931
## neighborhoodRebel Valley Forest            -8.822e+01  6.979e+00 -12.641
## neighborhoodReynoldstown                    3.229e+02  4.095e+00  78.851
## neighborhoodRidgecrest Forest              -3.635e-01  1.196e+01  -0.030
## neighborhoodRidgedale Park                  9.914e+01  7.993e+00  12.404
## neighborhoodRidgewood Heights              -2.189e+01  1.151e+01  -1.902
## neighborhoodRiverside                      -6.176e+01  4.312e+00 -14.322
## neighborhoodRockdale                       -1.745e+02  5.976e+00 -29.196
## neighborhoodRosedale Heights               -1.086e+02  6.531e+00 -16.628
## neighborhoodRue Royal                      -8.399e+01  2.793e+01  -3.007
## neighborhoodSandlewood Estates             -8.392e+01  1.151e+01  -7.291
## neighborhoodScotts Crossing                -1.555e+02  5.760e+00 -26.992
## neighborhoodSherwood Forest                 2.850e+02  1.978e+01  14.403
## neighborhoodSouth Atlanta                  -5.961e+01  4.040e+00 -14.754
## neighborhoodSouth River Gardens            -1.296e+02  3.460e+00 -37.469
## neighborhoodSouth Tuxedo Park               5.620e+01  4.466e+00  12.584
## neighborhoodSouthwest                      -5.395e+01  3.591e+00 -15.023
## neighborhoodSpringlake                     -1.311e+01  1.068e+01  -1.228
## neighborhoodSummerhill                     -2.700e+01  3.653e+00  -7.390
## neighborhoodSwallow Circle/Baywood         -9.609e+01  1.195e+01  -8.040
## neighborhoodSweet Auburn                    3.076e+02  3.034e+00 101.394
## neighborhoodSylvan Hills                   -1.025e+02  2.529e+00 -40.503
## neighborhoodTampa Park                     -1.020e+02  1.979e+01  -5.152
## neighborhoodThe Villages at Carver         -6.709e+01  4.093e+00 -16.392
## neighborhoodThe Villages at Castleberry H  -2.192e+02  5.609e+00 -39.073
## neighborhoodThe Villages at East Lake       3.413e+02  5.933e+00  57.521
## neighborhoodThomasville Heights            -5.676e+01  4.229e+00 -13.421
## neighborhoodTuxedo Park                     7.015e+01  1.079e+01   6.498
## neighborhoodUnderwood Hills                -3.568e+01  3.001e+00 -11.891
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## neighborhoodVenetian Hills 2.570e+00 3.034e+00 0.847
## neighborhoodVine City -2.103e+02 2.562e+00 -82.070
## neighborhoodVirginia Highland 3.581e+02 3.043e+00 117.673
## neighborhoodWashington Park -2.107e+02 4.591e+00 -45.891
## neighborhoodWesley Battle -7.726e+00 1.501e+01 -0.515
## neighborhoodWest End 3.430e+01 2.195e+00 15.628
## neighborhoodWest Highlands -1.699e+02 4.480e+00 -37.937
## neighborhoodWest Lake -2.236e+02 5.716e+00 -39.116
## neighborhoodWest Manor -1.777e+00 8.697e+00 -0.204
## neighborhoodWest Paces Ferry/Northside 4.484e+01 7.275e+00 6.164
## neighborhoodWesthaven -2.468e+02 8.898e+00 -27.732
## neighborhoodWestminster/Milmar 1.349e+01 1.621e+01 0.832
## neighborhoodWestover Plantation -1.964e+01 2.282e+01 -0.861
## neighborhoodWestview 4.217e+01 3.296e+00 12.794
## neighborhoodWestwood Terrace 3.232e+01 8.310e+00 3.889
## neighborhoodWhitewater Creek 6.154e+01 1.625e+01 3.786
## neighborhoodWhittier Mill Village -6.355e+01 5.825e+00 -10.910
## neighborhoodWildwood (NPU-C) -2.229e+01 4.832e+00 -4.613
## neighborhoodWildwood (NPU-H) 7.433e-01 8.698e+00 0.085
## neighborhoodWildwood Forest -1.140e+02 1.980e+01 -5.761
## neighborhoodWilson Mill Meadows 1.149e+01 7.427e+00 1.547
## neighborhoodWisteria Gardens 2.528e+01 1.061e+01 2.383
## neighborhoodWoodfield 1.398e+00 1.979e+01 0.071
## neighborhoodWoodland Hills 2.733e+02 5.824e+00 46.915
## neighborhoodWyngate 2.482e+01 1.503e+01 1.651
## x -6.831e+02 6.001e+00 -113.828
## y -1.708e+03 1.501e+01 -113.839
## Pr(>|t|) ## (Intercept) < 2e-16 ***
## MinOfucr < 2e-16 ***
## MaxOfnum_victims 0.582092
## loc_type 3.97e-10 ***
## neighborhoodAdair Park < 2e-16 ***
## neighborhoodAdams Park 0.046818 *
## neighborhoodAdamsville < 2e-16 ***
## neighborhoodAlmond Park < 2e-16 ***
## neighborhoodAmal Heights < 2e-16 ***
## neighborhoodAnsley Park < 2e-16 ***
## neighborhoodArden/Habersham 0.051814 .
## neighborhoodArdmore 0.055272 .
## neighborhoodArgonne Forest 0.012120 *
## neighborhoodArlington Estates < 2e-16 ***
## neighborhoodAshley Courts 4.73e-13 ***
## neighborhoodAshview Heights < 2e-16 ***
## neighborhoodAtkins Park < 2e-16 ***
## neighborhoodAtlanta Industrial Park < 2e-16 ***
## neighborhoodAtlanta University Center < 2e-16 ***
## neighborhoodAtlantic Station < 2e-16 ***
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## neighborhoodAudobon Forest 0.687009
## neighborhoodAudobon Forest West 0.498808
## neighborhoodBaker Hills 0.001737 **
## neighborhoodBakers Ferry 0.854218
## neighborhoodBankhead < 2e-16 ***
## neighborhoodBankhead/Bolton < 2e-16 ***
## neighborhoodBeecher Hills 0.118877
## neighborhoodBen Hill < 2e-16 ***
## neighborhoodBen Hill Acres < 2e-16 ***
## neighborhoodBen Hill Forest 0.000269 ***
## neighborhoodBen Hill Pines 1.02e-08 ***
## neighborhoodBen Hill Terrace < 2e-16 ***
## neighborhoodBenteen Park < 2e-16 ***
## neighborhoodBerkeley Park < 2e-16 ***
## neighborhoodBetmar LaVilla < 2e-16 ***
## neighborhoodBlair Villa/Poole Creek < 2e-16 ***
## neighborhoodBlandtown < 2e-16 ***
## neighborhoodBolton < 2e-16 ***
## neighborhoodBolton Hills < 2e-16 ***
## neighborhoodBoulder Park 0.900583
## neighborhoodBoulevard Heights < 2e-16 ***
## neighborhoodBrandon 0.616518
## neighborhoodBrentwood 3.62e-12 ***
## neighborhoodBriar Glen 3.64e-05 ***
## neighborhoodBrookhaven < 2e-16 ***
## neighborhoodBrookview Heights < 2e-16 ***
## neighborhoodBrookwood 0.005674 **
## neighborhoodBrookwood Hills 0.054002 .
## neighborhoodBrowns Mill Park < 2e-16 ***
## neighborhoodBuckhead Forest < 2e-16 ***
## neighborhoodBuckhead Heights < 2e-16 ***
## neighborhoodBuckhead Village < 2e-16 ***
## neighborhoodBush Mountain 0.003316 **
## neighborhoodButner/Tell 3.82e-06 ***
## neighborhoodCabbagetown < 2e-16 ***
## neighborhoodCampbellton Road < 2e-16 ***
## neighborhoodCandler Park < 2e-16 ***
## neighborhoodCapitol Gateway < 2e-16 ***
## neighborhoodCapitol View < 2e-16 ***
## neighborhoodCapitol View Manor < 2e-16 ***
## neighborhoodCarey Park < 2e-16 ***
## neighborhoodCarroll Heights < 2e-16 ***
## neighborhoodCarver Hills < 2e-16 ***
## neighborhoodCascade Avenue/Road 4.45e-05 ***
## neighborhoodCascade Green 0.019380 *
## neighborhoodCascade Heights 0.003374 **
## neighborhoodCastleberry Hill < 2e-16 ***
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## neighborhoodCastlewood 0.162018
## neighborhoodCenter Hill < 2e-16 ***
## neighborhoodChalet Woods 0.113263
## neighborhoodChanning Valley 0.002108 **
## neighborhoodChastain Park < 2e-16 ***
## neighborhoodChosewood Park < 2e-16 ***
## neighborhoodCollier Heights < 2e-16 ***
## neighborhoodCollier Hills 0.154439
## neighborhoodCollier Hills North 0.797261
## neighborhoodColonial Homes 0.921295
## neighborhoodCross Creek 0.075671 .
## neighborhoodCuster/McDonough/Guice < 2e-16 ***
## neighborhoodDeerwood < 2e-16 ***
## neighborhoodDixie Hills < 2e-16 ***
## neighborhoodDowntown < 2e-16 ***
## neighborhoodDruid Hills < 2e-16 ***
## neighborhoodEast Ardley Road 0.640317
## neighborhoodEast Atlanta < 2e-16 ***
## neighborhoodEast Chastain Park < 2e-16 ***
## neighborhoodEast Lake < 2e-16 ***
## neighborhoodEdgewood < 2e-16 ***
## neighborhoodElmco Estates < 2e-16 ***
## neighborhoodEnglish Avenue < 2e-16 ***
## neighborhoodEnglish Park < 2e-16 ***
## neighborhoodFairburn < 2e-16 ***
## neighborhoodFairburn Heights < 2e-16 ***
## neighborhoodFairburn Mays 0.950328
## neighborhoodFairburn Road/Wisteria Lane 0.498121
## neighborhoodFairburn Tell 0.013008 *
## neighborhoodFairway Acres 8.76e-11 ***
## neighborhoodFernleaf 0.132436
## neighborhoodFlorida Heights < 2e-16 ***
## neighborhoodFort McPherson 0.966315
## neighborhoodFort Valley 0.004089 **
## neighborhoodGarden Hills < 2e-16 ***
## neighborhoodGeorgia Tech < 2e-16 ***
## neighborhoodGlenrose Heights < 2e-16 ***
## neighborhoodGrant Park < 2e-16 ***
## neighborhoodGreen Acres Valley 0.406707
## neighborhoodGreen Forest Acres 0.556440
## neighborhoodGreenbriar < 2e-16 ***
## neighborhoodGreenbriar Village 2.61e-08 ***
## neighborhoodGrove Park < 2e-16 ***
## neighborhoodHammond Park < 2e-16 ***
## neighborhoodHanover West 0.364883
## neighborhoodHarland Terrace 0.265752
## neighborhoodHarris Chiles < 2e-16 ***
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## neighborhoodHarvel Homes Community < 2e-16 ***
## neighborhoodHeritage Valley 7.09e-08 ***
## neighborhoodHigh Point 8.75e-13 ***
## neighborhoodHills Park < 2e-16 ***
## neighborhoodHome Park < 2e-16 ***
## neighborhoodHorseshoe Community 0.336607
## neighborhoodHunter Hills < 2e-16 ***
## neighborhoodHuntington 1.91e-09 ***
## neighborhoodInman Park < 2e-16 ***
## neighborhoodIvan Hill 0.117151
## neighborhoodJoyland < 2e-16 ***
## neighborhoodJust Us 9.39e-09 ***
## neighborhoodKings Forest < 2e-16 ***
## neighborhoodKingswood 0.095246 .
## neighborhoodKirkwood < 2e-16 ***
## neighborhoodKnight Park/Howell Station < 2e-16 ***
## neighborhoodLake Claire < 2e-16 ***
## neighborhoodLake Estates 0.005716 **
## neighborhoodLakewood < 2e-16 ***
## neighborhoodLakewood Heights < 2e-16 ***
## neighborhoodLaurens Valley 0.202956
## neighborhoodLeila Valley < 2e-16 ***
## neighborhoodLenox < 2e-16 ***
## neighborhoodLincoln Homes < 2e-16 ***
## neighborhoodLindbergh/Morosgo < 2e-16 ***
## neighborhoodLindridge/Martin Manor < 2e-16 ***
## neighborhoodLoring Heights < 2e-16 ***
## neighborhoodMagnum Manor 0.152003
## neighborhoodMargaret Mitchell 0.851911
## neighborhoodMarietta Street Artery < 2e-16 ***
## neighborhoodMays 0.120166
## neighborhoodMeadowbrook Forest 1.27e-10 ***
## neighborhoodMechanicsville < 2e-16 ***
## neighborhoodMellwood < 2e-16 ***
## neighborhoodMemorial Park 0.876069
## neighborhoodMidtown < 2e-16 ***
## neighborhoodMidwest Cascade 9.66e-09 ***
## neighborhoodMonroe Heights < 2e-16 ***
## neighborhoodMorningside/Lenox Park 5.77e-05 ***
## neighborhoodMozley Park < 2e-16 ***
## neighborhoodMt. Gilead Woods 4.52e-05 ***
## neighborhoodMt. Paran Parkway 0.040809 *
## neighborhoodMt. Paran/Northside 1.77e-13 ***
## neighborhoodNiskey Cove 0.015619 *
## neighborhoodNiskey Lake 0.003028 **
## neighborhoodNorth Buckhead < 2e-16 ***
## neighborhoodNorwood Manor < 2e-16 ***
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## neighborhoodOakcliff < 2e-16 ***
## neighborhoodOakland < 2e-16 ***
## neighborhoodOakland City 6.80e-08 ***
## neighborhoodOld Fairburn Village 0.252421
## neighborhoodOld Fourth Ward < 2e-16 ***
## neighborhoodOld Gordon < 2e-16 ***
## neighborhoodOrchard Knob < 2e-16 ***
## neighborhoodOrmewood Park < 2e-16 ***
## neighborhoodPaces 0.000882 ***
## neighborhoodPeachtree Battle Alliance 0.555800
## neighborhoodPeachtree Heights East 0.006487 **
## neighborhoodPeachtree Heights West < 2e-16 ***
## neighborhoodPeachtree Hills 0.000358 ***
## neighborhoodPeachtree Park < 2e-16 ***
## neighborhoodPenelope Neighbors < 2e-16 ***
## neighborhoodPeoplestown < 2e-16 ***
## neighborhoodPerkerson < 2e-16 ***
## neighborhoodPeyton Forest 0.089554 .
## neighborhoodPiedmont Heights 0.031022 *
## neighborhoodPine Hills < 2e-16 ***
## neighborhoodPittsburgh < 2e-16 ***
## neighborhoodPleasant Hill 0.028707 *
## neighborhoodPolar Rock < 2e-16 ***
## neighborhoodPomona Park 0.581376
## neighborhoodPoncey-Highland < 2e-16 ***
## neighborhoodPrinceton Lakes < 2e-16 ***
## neighborhoodRandall Mill 8.23e-07 ***
## neighborhoodRebel Valley Forest < 2e-16 ***
## neighborhoodReynoldstown < 2e-16 ***
## neighborhoodRidgecrest Forest 0.975746
## neighborhoodRidgedale Park < 2e-16 ***
## neighborhoodRidgewood Heights 0.057201 .
## neighborhoodRiverside < 2e-16 ***
## neighborhoodRockdale < 2e-16 ***
## neighborhoodRosedale Heights < 2e-16 ***
## neighborhoodRue Royal 0.002637 **
## neighborhoodSandlewood Estates 3.18e-13 ***
## neighborhoodScotts Crossing < 2e-16 ***
## neighborhoodSherwood Forest < 2e-16 ***
## neighborhoodSouth Atlanta < 2e-16 ***
## neighborhoodSouth River Gardens < 2e-16 ***
## neighborhoodSouth Tuxedo Park < 2e-16 ***
## neighborhoodSouthwest < 2e-16 ***
## neighborhoodSpringlake 0.219580
## neighborhoodSummerhill 1.51e-13 ***
## neighborhoodSwallow Circle/Baywood 9.42e-16 ***
## neighborhoodSweet Auburn < 2e-16 ***
```

```
## neighborhoodSylvan Hills < 2e-16 ***
## neighborhoodTampa Park 2.60e-07 ***
## neighborhoodThe Villages at Carver < 2e-16 ***
## neighborhoodThe Villages at Castleberry H < 2e-16 ***
## neighborhoodThe Villages at East Lake < 2e-16 ***
## neighborhoodThomasville Heights < 2e-16 ***
## neighborhoodTuxedo Park 8.30e-11 ***
## neighborhoodUnderwood Hills < 2e-16 ***
## neighborhoodVenetian Hills 0.397000
## neighborhoodVine City < 2e-16 ***
## neighborhoodVirginia Highland < 2e-16 ***
## neighborhoodWashington Park < 2e-16 ***
## neighborhoodWesley Battle 0.606691
## neighborhoodWest End < 2e-16 ***
## neighborhoodWest Highlands < 2e-16 ***
## neighborhoodWest Lake < 2e-16 ***
## neighborhoodWest Manor 0.838127
## neighborhoodWest Paces Ferry/Northside 7.23e-10 ***
## neighborhoodWesthaven < 2e-16 ***
## neighborhoodWestminster/Milmar 0.405328
## neighborhoodWestover Plantation 0.389368
## neighborhoodWestview < 2e-16 ***
## neighborhoodWestwood Terrace 0.000101 ***
## neighborhoodWhitewater Creek 0.000153 ***
## neighborhoodWhittier Mill Village < 2e-16 ***
## neighborhoodWildwood (NPU-C) 3.98e-06 ***
## neighborhoodWildwood (NPU-H) 0.931892
## neighborhoodWildwood Forest 8.47e-09 ***
## neighborhoodWilson Mill Meadows 0.121980
## neighborhoodWisteria Gardens 0.017168 *
## neighborhoodWoodfield 0.943692
## neighborhoodWoodland Hills < 2e-16 ***
## neighborhoodWyngate 0.098731 .
## x < 2e-16 ***
## y < 2e-16 ***
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 39.41 on 23172 degrees of freedom
## (3344 observations deleted due to missingness)
## Multiple R-squared: 0.9464, Adjusted R-squared: 0.9459
## F-statistic: 1692 on 242 and 23172 DF, p-value: < 2.2e-16 vif(fit)
## GVIF Df GVIF^(1/(2*Df))
## MinOfucr 1.171762 1 1.082480
## MaxOfnum_victims 1.024168 1 1.012012
## loc_type 1.026056 1 1.012944
## neighborhood 11.793507 237 1.005219
```

x 23807.337630 1 154.296266
y 23818.989658 1 154.334020

➢ P-values are very important because, we can consider linear model to be statistically significant only.

➢ When both these p-values are less that the pre-determined statistical determined level, which is ideally 0.05.

➢ This is visually interpreted by the significance stars at the end of the row.

➢ The more stars beside the variable's p-value, the more significant the variable.

When there is a p-value, there is a null and alternative hypothesis associated with it.

Null and Alternate Hypothesis

➢ In Linear regression, the Null Hypothesis is that the coefficients associated with the variables is equal to zero.

➢ The alternate hypothesis is that the coefficients are not equal to zero.

➢ There exists a relationship between the independent variable in question and the dependent variable.

GVIF Df GVIF^(1/(2*Df))
beat 18.615002 1 4.314511
MaxOfnum_victims 1.016947 1 1.008438
loc_type 1.027692 1 1.013752
neighborhood 201.207857 237 1.011253
x 37103.058286 1 192.621542
y 37121.328278 1 192.668960

Coefficient,Estimate, std.error,Tval
&Pr(>|t|)
neighborhoodIvan Hill 0.18995 31.7182 0.006 0.995222
neighborhoodPomona Park -0.70578 70.67374 -0.01 0.992032
neighborhoodEast Ardley Road 0.81515 57.71572 0.014 0.988731
neighborhoodOrchard Knob 0.78361 17.60243 0.045 0.964492
neighborhoodCascade Heights -0.54782 11.8724 -0.046 0.963197
neighborhoodCollier Hills -1.57088 28.03153 -0.056 0.955311
neighborhoodGreen Forest Acres 2.03632 35.43986 0.057 0.954181
neighborhoodAmal Heights -1.74562 21.55404 -0.081 0.935452
neighborhoodGlenrose Heights 0.69584 8.58791 0.081 0.935423
neighborhoodScotts Crossing -1.25164 14.81232 -0.084 0.93266
neighborhoodBrookwood 2.04586 18.16387 0.113 0.910322
neighborhoodBuckhead Heights 1.97872 17.55909 0.113 0.910278
neighborhoodSandlewood Estates -3.36595 29.18066 -0.115 0.90817
neighborhoodHeritage Valley 2.94675 25.26591 0.117 0.907155
neighborhoodMt. Paran/Northside -3.01141 24.97503 -0.121 0.904027
neighborhoodPolar Rock 2.54844 18.58454 0.137 0.890932
neighborhoodArden/Habersham 6.64751 44.94562 0.148 0.882422
neighborhoodMozley Park -1.87526 11.56441 -0.162 0.871183

neighborhoodRidgedale Park 3.38582 20.30795 0.167 0.867589
neighborhoodFairburn -4.33549 20.49293 -0.212 0.832452
neighborhoodNiskey Cove 15.94718 70.69396 0.226 0.82153
neighborhoodAudobon Forest -5.97875 25.15904 -0.238 0.812164
neighborhoodMeadowbrook Forest -8.17084 30.40992 -0.269 0.788171
neighborhoodChosewood Park -3.06345 11.00551 -0.278 0.780741
neighborhoodChastain Park 6.54934 22.77241 0.288 0.773656
neighborhoodGreenbriar 1.99187 6.8906 0.289 0.77253
neighborhoodCascade Green 12.02139 40.91864 0.294 0.768923
neighborhoodPeyton Forest 9.89081 31.7177 0.312 0.755166
neighborhoodMt. Paran Parkway 31.53809 100.0009 0.315 0.752477
neighborhoodMonroe Heights 5.36775 16.82558 0.319 0.749712
neighborhoodMarietta Street Artery -3.3602 10.18978 -0.33 0.741583
neighborhoodAlmond Park 5.15041 15.58872 0.33 0.741106
neighborhoodOld Fairburn Village 33.39344 99.87213 0.334 0.738109
neighborhoodEnglish Park -8.81457 24.64719 -0.358 0.720624
neighborhoodBeecher Hills -10.1116 27.86253 -0.363 0.716677
neighborhoodFairburn Tell 37.84429 99.91444 0.379 0.704864
neighborhoodFairway Acres 15.97263 41.04548 0.389 0.697173
neighborhoodHorseshoe Community -27.5546 70.65781 -0.39 0.696561
neighborhoodBrookhaven 13.62287 32.29803 0.422 0.673185
neighborhoodHuntington 24.97747 57.91696 0.431 0.666281
neighborhoodCabbagetown -7.00131 15.96335 -0.439 0.660965
neighborhoodLake Claire -7.20788 16.14665 -0.446 0.655312
neighborhoodDeerwood 11.11434 23.39644 0.475 0.63476
neighborhoodOld Gordon 10.85688 22.39042 0.485 0.627759
neighborhoodBen Hill Pines -19.9293 41.01709 -0.486 0.627059
neighborhoodDixie Hills -5.46251 11.11481 -0.491 0.623104
neighborhoodBakers Ferry -22.2155 44.75458 -0.496 0.619627
neighborhoodGeorgia Tech 37.27899 70.77658 0.527 0.598397
neighborhoodRebel Valley Forest -9.37548 17.73253 -0.529 0.597007
neighborhoodPeachtree Park 7.34794 13.39376 0.549 0.583279
neighborhoodFort McPherson -40.5911 70.64509 -0.575 0.565583
neighborhoodPittsburgh -4.17695 6.86732 -0.608 0.543037
neighborhoodCapitol View -6.00118 9.84386 -0.61 0.542108
neighborhoodLindridge/Martin Manor 5.64553 8.88628 0.635 0.525233
neighborhoodBolton Hills 26.19894 41.00062 0.639 0.522837
neighborhoodAshview Heights -6.7408 10.47775 -0.643 0.520007
neighborhoodPine Hills 6.89367 10.68744 0.645 0.518917
neighborhoodAtkins Park -39.4179 58.07207 -0.679 0.497287
neighborhoodFairburn Road/Wisteria Lane 27.48272 37.85613 0.726 0.46786
neighborhoodBen Hill Terrace -13.6516 18.75246 -0.728 0.466629
neighborhoodEast Chastain Park 13.9809 17.93875 0.779 0.435771
neighborhoodBrookwood Hills 12.08225 15.22187 0.794 0.427353
neighborhoodLaurens Valley 57.13108 70.6623 0.809 0.418806
neighborhoodButner/Tell -46.879 57.83658 -0.811 0.417637
neighborhoodBriar Glen 33.76307 40.9596 0.824 0.409777

neighborhoodNorwood Manor -13.8523 16.34179 -0.848 0.396636
neighborhoodBush Mountain -18.4889 21.06651 -0.878 0.380147
neighborhoodCollier Hills North 64.48398 70.71828 0.912 0.361861
neighborhoodBoulder Park -37.335 40.8767 -0.913 0.361064
neighborhoodCapitol Gateway 16.08137 16.81071 0.957 0.338772
neighborhoodMidtown -6.27314 6.39659 -0.981 0.326751
neighborhoodGreen Acres Valley -44.0883 44.76003 -0.985 0.324638
neighborhoodKingswood 69.87008 70.79024 0.987 0.323652
neighborhoodRidgewood Heights 29.60442 29.1443 1.016 0.309741
neighborhoodBen Hill -18.325 17.72395 -1.034 0.301189
neighborhoodNiskey Lake 51.94337 50.06304 1.038 0.299486
neighborhoodPleasant Hill 46.81742 44.96644 1.041 0.297811
neighborhoodMellwood 74.03428 70.81976 1.045 0.295854
neighborhoodRidgecrest Forest -31.9837 30.27555 -1.056 0.290787
neighborhoodCarroll Heights -19.4876 17.35058 -1.123 0.261378
neighborhoodPeachtree Heights East 31.94805 28.1669 1.134 0.256705
neighborhoodPiedmont Heights 9.70736 8.48279 1.144 0.252487
neighborhoodColonial Homes 51.51639 44.87369 1.148 0.250968
neighborhoodMechanicsville -6.86339 5.94492 -1.154 0.248308
neighborhoodAudobon Forest West 43.72563 37.86685 1.155 0.248217

lm(formula = MinOfucr ~ beat + MaxOfnum_victims + loc_type +

```
neighborhood + x + y, data = COBRA_YTD2017)
Coefficients:
(Intercept) beat
183.98780 0.14243
Call:
lm(formula = MinOfucr ~ beat + MaxOfnum_victims + loc_type +
neighborhood + x + y, data = COBRA_YTD2017)
Residuals:
Min 1Q Median 3Q Max
-333.96 -36.06 21.83 61.68 438.61
```

vif(fi)>5
```
GVIF Df GVIF^(1/(2*Df))
beat TRUE FALSE FALSE
MaxOfnum_victims FALSE FALSE FALSE
loc_type TRUE TRUE FALSE
neighborhood TRUE TRUE FALSE
x TRUE FALSE TRUE
y TRUE FALSE TRUE
```
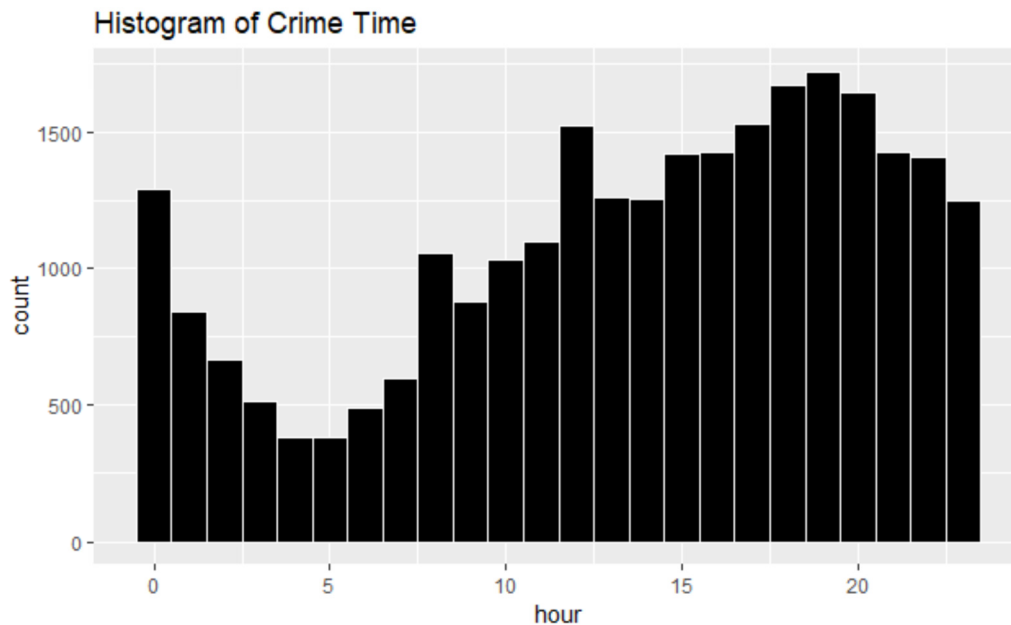
b. Find out top 3 reasons for having more crime in a city.

c. Which all attributes have high correlation with crime rate?

at$dayofWeek <- weekdays(as.Date(at$occur_date))
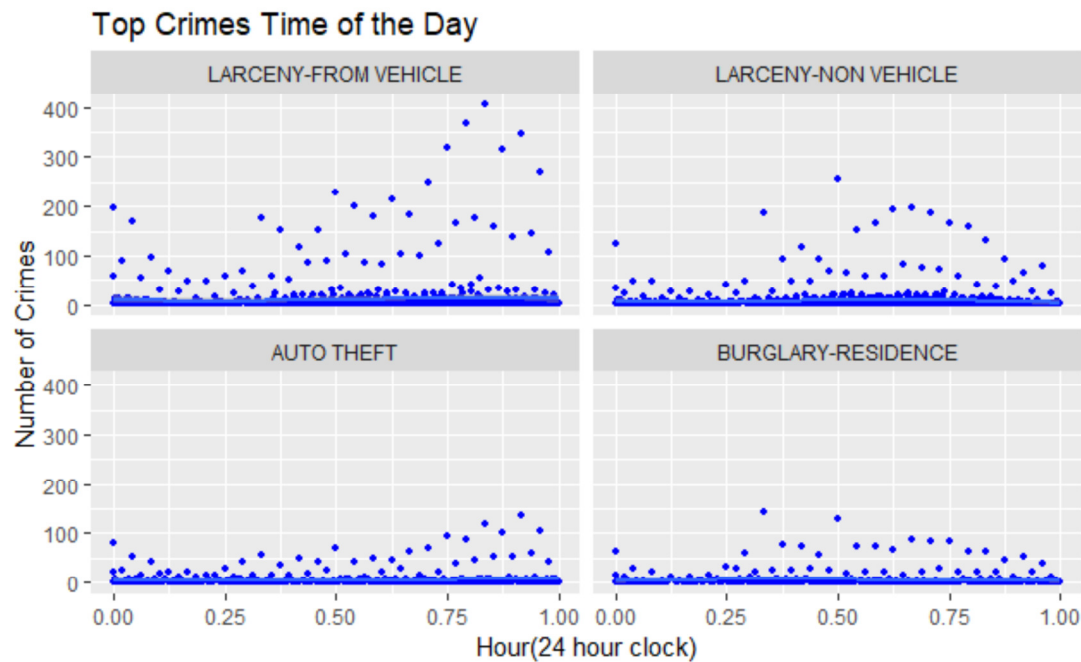at$hour <- sub(":.*", "", at$occur_time)
at$hour <- as.numeric(at$hour)

```
ggplot(aes(x = hour), data = at) + geom_histogram(bins = 24, color='white', fill='black') +
ggtitle('Histogram of Crime Time')
```
#The crime time distribution appears bimodal with peaking around midnight and again at the noon,
then again between 6pm and 8pm

Histogram of Crime Time


```
#topCrimes_1 <- topCrimes %>% group_by(`UC2 Literal`,occur_time) %>%
#summarise(total = n())
#ggplot(aes(x = occur_time, y = total), data = topCrimes_1) +
#geom_point(colour="blue", size=1) +
#geom_smooth(method="loess") +
#xlab('Hour(24 hour clock)') +
# ylab('Number of Crimes') +
#ggtitle('Top Crimes Time of the Day') +
#facet_wrap(~`UC2 Literal`)
```

#Downtown and midtown are the most common locations where crimes take place, followed by Old
Fourth Ward and West End.
larceny theft are the top crimes in Atlanta followed by aggravated assault

Top Crimes Time of the Day

```
kable(count(COBRA_YTD2017, loc_type, sort=TRUE), "html", col.names=c("Crime Type",
"Frequency")) %>%
kable_styling(bootstrap_options="striped", full_width=FALSE)
COBRA_YTD2017 %>%
group_by(days, loc_type) %>%
summarize(freq=n()) %>%
ggplot(aes(reorder(days, -freq), freq)) +
geom_bar(aes(fill=loc_type), position="dodge", stat="identity", width=0.8, color="black") +
xlab("Day of Week") +
ylab("Frequency") +
labs(fill="Crime Type") +
ggtitle("Crime by Day of the Week") +
kable
```

**#The data provides crime type frequency and crime by day of the week.#Among the high crime
categories, larceny tend to increase on Fridays and Saturdays. while burglary residence generally
occurred more often during the weekdays than the weekends. Auto theft were least reported on
Thursdays and increase for the weekends.**

Crime Type	Frequency
LARCENY-FROM VEHICLE	9840
LARCENY-NON VEHICLE	6589
AUTO THEFT	3197
BURGLARY-RESIDENCE	2635
AGG ASSAULT	2024
ROBBERY-PEDESTRIAN	1126
BURGLARY-NONRES	758
RAPE	226
ROBBERY-COMMERCIAL	157

Crime by Day of the Week