# Team project

### R Markdown

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When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

## ## Dataset Description

### Import statement

```
cov_vax_admin <- read_csv("cov_vax_admin.csv")
```

```
##
## -- Column specification --------------------------------------------------------
## cols(
##   X1 = col_double(),
##   as_of_date = col_date(format = ""),
##   zip_code_tabulation_area = col_double(),
##   local_health_jurisdiction = col_character(),
##   county = col_character(),
##   vaccine_equity_metric_quartile = col_double(),
##   vem_source = col_character(),
##   age12_plus_population = col_double(),
##   persons_fully_vaccinated = col_double(),
##   persons_partially_vaccinated = col_double(),
##   redacted = col_character()
## )
```

```
ca_county_demographics <- read_csv("ca_county_demographics.csv")
```

```
## Warning: Missing column names filled in: 'X1' [1]
```

```
##
## -- Column specification --------------------------------------------------------
## cols(
##   .default = col_double(),
##   name = col_character(),
##   county_fips = col_character()
## )
## i Use `spec()` for the full column specifications.
```

```
rename(cov_vax_admin, "No."="X1")
```

```
## # A tibble: 65,268 x 11
##      No. as_of_date zip_code_tabulat~ local_health_jur~ county vaccine_equity_m~
##    <dbl> <date>                <dbl> <chr>             <chr>                <dbl>
##  1     1 2021-01-05            92703 ORANGE            ORANGE                   1
```

```
##  2     2 2021-01-05             92285 SAN BERNARDINO    SAN B~                1
##  3     3 2021-01-05             92284 SAN BERNARDINO    SAN B~                1
##  4     4 2021-01-05             92275 IMPERIAL          IMPER~                1
##  5     5 2021-01-05             92532 RIVERSIDE         RIVER~                3
##  6     6 2021-01-05             92376 SAN BERNARDINO    SAN B~                1
##  7     7 2021-01-05             92345 SAN BERNARDINO    SAN B~                1
##  8     8 2021-01-05             91343 LOS ANGELES       LOS A~                2
##  9     9 2021-01-05             91910 SAN DIEGO         SAN D~                2
## 10    10 2021-01-05             91773 LOS ANGELES       LOS A~                3
## # ... with 65,258 more rows, and 5 more variables: vem_source <chr>,
## #   age12_plus_population <dbl>, persons_fully_vaccinated <dbl>,
## #   persons_partially_vaccinated <dbl>, redacted <chr>
```

```
view(cov_vax_admin)
view(ca_county_demographics)
str(cov_vax_admin)
```

```
## spec_tbl_df [65,268 x 11] (S3: spec_tbl_df/tbl_df/tbl/data.frame)
##  $ X1                            : num [1:65268] 1 2 3 4 5 6 7 8 9 10 ...
##  $ as_of_date                    : Date[1:65268], format: "2021-01-05" "2021-01-05" ...
##  $ zip_code_tabulation_area      : num [1:65268] 92703 92285 92284 92275 92532 ...
##  $ local_health_jurisdiction     : chr [1:65268] "ORANGE" "SAN BERNARDINO" "SAN BERNARDINO" "IMPERIAL
##  $ county                        : chr [1:65268] "ORANGE" "SAN BERNARDINO" "SAN BERNARDINO" "IMPERIAL
##  $ vaccine_equity_metric_quartile: num [1:65268] 1 1 1 1 3 1 1 2 2 3 ...
##  $ vem_source                    : chr [1:65268] "Healthy Places Index Score" "Healthy Places Index S
##  $ age12_plus_population         : num [1:65268] 57183 2317 22255 2269 19882 ...
##  $ persons_fully_vaccinated      : num [1:65268] NA NA NA NA NA NA NA 17 28 27 ...
##  $ persons_partially_vaccinated  : num [1:65268] NA NA NA NA NA ...
##  $ redacted                      : chr [1:65268] "Information redacted in accordance with CA state pr
##  - attr(*, "spec")=
##   .. cols(
##   ..   X1 = col_double(),
##   ..   as_of_date = col_date(format = ""),
##   ..   zip_code_tabulation_area = col_double(),
##   ..   local_health_jurisdiction = col_character(),
##   ..   county = col_character(),
##   ..   vaccine_equity_metric_quartile = col_double(),
##   ..   vem_source = col_character(),
##   ..   age12_plus_population = col_double(),
##   ..   persons_fully_vaccinated = col_double(),
##   ..   persons_partially_vaccinated = col_double(),
##   ..   redacted = col_character()
##   .. )
```

## What is the data source? (1-2 sentences on where the data is coming from, dates included, etc.)

## One dataset is California county demographic information.

## Another dataset is Covid-19 vaccine administration in 2021.

```
str(cov_vax_admin)
```

```
## spec_tbl_df [65,268 x 11] (S3: spec_tbl_df/tbl_df/tbl/data.frame)
##  $ X1                           : num [1:65268] 1 2 3 4 5 6 7 8 9 10 ...
##  $ as_of_date                   : Date[1:65268], format: "2021-01-05" "2021-01-05" ...
##  $ zip_code_tabulation_area     : num [1:65268] 92703 92285 92284 92275 92532 ...
##  $ local_health_jurisdiction    : chr [1:65268] "ORANGE" "SAN BERNARDINO" "SAN BERNARDINO" "IMPERIAL
##  $ county                       : chr [1:65268] "ORANGE" "SAN BERNARDINO" "SAN BERNARDINO" "IMPERIAL
##  $ vaccine_equity_metric_quartile: num [1:65268] 1 1 1 1 3 1 1 2 2 3 ...
##  $ vem_source                   : chr [1:65268] "Healthy Places Index Score" "Healthy Places Index S
##  $ age12_plus_population        : num [1:65268] 57183 2317 22255 2269 19882 ...
##  $ persons_fully_vaccinated     : num [1:65268] NA NA NA NA NA NA NA 17 28 27 ...
##  $ persons_partially_vaccinated : num [1:65268] NA NA NA NA NA ...
##  $ redacted                     : chr [1:65268] "Information redacted in accordance with CA state pr
##  - attr(*, "spec")=
##   .. cols(
##   ..   X1 = col_double(),
##   ..   as_of_date = col_date(format = ""),
##   ..   zip_code_tabulation_area = col_double(),
##   ..   local_health_jurisdiction = col_character(),
##   ..   county = col_character(),
##   ..   vaccine_equity_metric_quartile = col_double(),
##   ..   vem_source = col_character(),
##   ..   age12_plus_population = col_double(),
##   ..   persons_fully_vaccinated = col_double(),
##   ..   persons_partially_vaccinated = col_double(),
##   ..   redacted = col_character()
##   .. )
```

## Gives summary of values within columns.

## Allows us to quickly identify date range for Cov vac as Jan 05 to Sep 14, 2021.

```
summary(cov_vax_admin)
```

```
##        X1          as_of_date         zip_code_tabulation_area
##  Min.   :    1   Min.   :2021-01-05   Min.   :90001
##  1st Qu.:16318   1st Qu.:2021-03-09   1st Qu.:92258
##  Median :32634   Median :2021-05-11   Median :93658
##  Mean   :32634   Mean   :2021-05-11   Mean   :93665
##  3rd Qu.:48951   3rd Qu.:2021-07-13   3rd Qu.:95380
##  Max.   :65268   Max.   :2021-09-14   Max.   :97635
##
##  local_health_jurisdiction    county          vaccine_equity_metric_quartile
##  Length:65268              Length:65268       Min.   :1.000
##  Class :character          Class :character   1st Qu.:1.000
##  Mode  :character          Mode  :character   Median :2.000
##                                               Mean   :2.436
##                                               3rd Qu.:3.000
##                                               Max.   :4.000
##                                               NA's   :3219
##   vem_source        age12_plus_population persons_fully_vaccinated
##  Length:65268       Min.   :    0         Min.   :   11
```

```
##  Class :character   1st Qu.: 1347         1st Qu.:  402
##  Mode  :character   Median :13685         Median : 3081
##                     Mean   :18895         Mean   : 8029
##                     3rd Qu.:31756         3rd Qu.:13154
##                     Max.   :88557         Max.   :67594
##                                           NA's   :7037
##  persons_partially_vaccinated   redacted
##  Min.   :   11.0              Length:65268
##  1st Qu.:  221.5              Class :character
##  Median : 1419.0              Mode  :character
##  Mean   : 2199.2
##  3rd Qu.: 3306.0
##  Max.   :23195.0
##  NA's   :7037
```

## How does the dataset relate to the group problem statement and question?

Ans: The datasets provide information on total potential population (demographics) and Covid vaccination (exposure to treatment).

### Identify data types for 5+ data elements/columns/variables

as_of_date, zip_code_tabulation_area, local_health_jurisdiction, age12_plus_population, persons_fully_vaccinated, persons_partially_vaccinated

```
class(cov_vax_admin$as_of_date)
```

```
## [1] "Date"
```

```
typeof(cov_vax_admin$as_of_date)
```

```
## [1] "double"
```

```
class(cov_vax_admin$zip_code_tabulation_area)
```

```
## [1] "numeric"
```

```
typeof(cov_vax_admin$zip_code_tabulation_area)
```

```
## [1] "double"
```

```
class(cov_vax_admin$local_health_jurisdiction)
```

```
## [1] "character"
```

```
typeof(cov_vax_admin$local_health_jurisdiction)
```

```
## [1] "character"
```

```
class(cov_vax_admin$age12_plus_population)
```

```
## [1] "numeric"
```

```
typeof(cov_vax_admin$age12_plus_population)
```

```
## [1] "double"
```

```r
# data type is "double"/numeric therefore no need to change data type
class(cov_vax_admin$persons_fully_vaccinated)
```

```
## [1] "numeric"
```

```r
typeof(cov_vax_admin$persons_fully_vaccinated)
```

```
## [1] "double"
```

```r
# data type is "double"/numeric therefore no need to change data type
class(cov_vax_admin$persons_partially_vaccinated)
```

```
## [1] "numeric"
```

```r
typeof(cov_vax_admin$persons_partially_vaccinated)
```

```
## [1] "double"
```

```r
# data type is "double"/numeric yet given that there are only whole integer numbers of persons we may
```

## Provide a basic description of the 5+ data elements

1. Numeric: mean, median, range
2. Character: unique values/categories
3. Or any other descriptives that will be useful to the analysis

```r
summary(cov_vax_admin$as_of_date)
```

```
##         Min.      1st Qu.       Median         Mean      3rd Qu.         Max.
## "2021-01-05" "2021-03-09" "2021-05-11" "2021-05-11" "2021-07-13" "2021-09-14"
```

```r
range(cov_vax_admin$as_of_date)
```

```
## [1] "2021-01-05" "2021-09-14"
```

```r
summary(cov_vax_admin$zip_code_tabulation_area)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   90001   92258   93658   93665   95380   97635
```

```r
range(cov_vax_admin$zip_code_tabulation_area)
```

```
## [1] 90001 97635
```

```r
summary(cov_vax_admin$local_health_jurisdiction)
```

```
##    Length     Class      Mode
##     65268 character character
```

```r
range(cov_vax_admin$local_health_jurisdiction)
```

```
## [1] NA NA
```

```r
summary(cov_vax_admin$age12_plus_population)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##       0    1347   13685   18895   31756   88557
```

```r
range(cov_vax_admin$age12_plus_population)
```

```
## [1]     0.0 88556.7
```

```r
summary(cov_vax_admin$persons_fully_vaccinated)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
##      11     402    3081    8029   13154   67594    7037
```

```r
range(cov_vax_admin$persons_fully_vaccinated)
```

```
## [1] NA NA
```

```r
summary(cov_vax_admin$persons_partially_vaccinated)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
##    11.0   221.5  1419.0  2199.2  3306.0 23195.0    7037
```

```r
range(cov_vax_admin$persons_partially_vaccinated)
```

```
## [1] NA NA
```

## Unique values/categories for date, zip code, and county

```r
unique(cov_vax_admin$as_of_date)
```

```
##  [1] "2021-01-05" "2021-01-12" "2021-01-19" "2021-01-26" "2021-02-02"
##  [6] "2021-02-09" "2021-02-16" "2021-02-23" "2021-03-02" "2021-03-09"
## [11] "2021-03-16" "2021-03-23" "2021-03-30" "2021-04-06" "2021-04-13"
## [16] "2021-04-20" "2021-04-27" "2021-05-04" "2021-05-11" "2021-05-18"
## [21] "2021-05-25" "2021-06-01" "2021-06-08" "2021-06-15" "2021-06-22"
## [26] "2021-06-29" "2021-07-06" "2021-07-13" "2021-07-20" "2021-07-27"
## [31] "2021-08-03" "2021-08-10" "2021-08-17" "2021-08-24" "2021-08-31"
## [36] "2021-09-07" "2021-09-14"
```

```r
unique(cov_vax_admin$zip_code_tabulation_area, nmax=NA)
```

```
##    [1] 92703 92285 92284 92275 92532 92376 92345 91343 91910 91773 92239 92057
##   [13] 92868 92865 92612 92026 92341 92339 95595 92234 91016 91105 91761 91405
##   [25] 91950 91914 92009 92707 92845 92807 92861 92368 92648 92647 92801 92311
##   [37] 92262 92253 92231 92869 92503 92410 91342 91722 92281 92407 92841 92614
##   [49] 92346 91303 91784 91384 92268 92203 92082 92029 92627 92832 92309 94127
##   [61] 92145 92081 94129 94103 92879 92821 92548 92230 93247 92147 92596 92886
##   [73] 92880 94925 92626 94523 94115 92604 93206 92544 92394 92395 92222 92140
##   [85] 92058 92055 92805 92562 92694 92332 92273 92555 92399 91748 91916 92258
##   [97] 92061 92014 92844 92663 92782 92656 92561 92358 92373 92259 92225 92347
##  [109] 92342 92866 92553 92551 92254 91902 93249 93004 93101 93041 94521 94025
##  [121] 94123 94535 92115 93730 93220 93064 93953 93932 94954 91602 94582 94573
##  [133] 94158 94528 94607 94588 94063 92114 93235 93723 93636 93524 93036 93103
##  [145] 91978 91962 91502 94503 94806 94534 94505 94963 94021 94611 94567 92220
##  [157] 92122 93258 93652 93628 93245 93928 93023 94805 91001 91948 91906 91401
##  [169] 94850 94720 94060 94585 94561 93545 93592 93043 91604 91204 91701 91607
##  [181] 91505 91935 91934 92374 92676 92833 92831 92692 92651 92124 92405 92359
##  [193] 91304 91905 92352 92131 92102 92655 92653 92404 95621 92337 91108 91324
##  [205] 91381 91932 92233 92308 93611 93426 93033 93108 94951 91608 94613 94548
##  [217] 94516 94085 94587 94022 92274 94804 92154 93633 93042 93603 93601 91942
##  [229] 91710 91423 91355 91107 91331 91306 91335 95639 95720 95920 94109 93643
##  [241] 93637 93630 93604 93434 93446 93311 93265 93251 92620 91963 95901 95973
##  [253] 95919 95717 95669 95674 94107 94002 92117 90713 90630 93614 93510 93201
##  [265] 93109 94924 95928 94972 90242 93535 93204 93207 93451 93287 93226 93430
```

```
##   [277] 91770 91767 95943 95842 93224 92173 92123 92078 90623 93926 93625 93517
##   [289] 93440 93238 93727 93230 93272 91766 91104 92518 92336 92325 92084 94564
##   [301] 94558 95662 91101 91352 91360 91361 91351 91320 91206 92584 91030 91344
##   [313] 91208 92083 94015 95823 95485 91755 91732 91301 91020 91775 91214 95138
##   [325] 92536 93205 93063 93701 91941 95830 95659 95606 95524 91040 91803 91321
##   [337] 91307 95237 92557 91367 92883 92508 92389 95528 95335 95257 95492 95476
##   [349] 91786 91730 91311 95233 95130 92677 92570 92507 92240 91901 91302 92364
##   [361] 92067 92344 92322 92011 92010 92780 94525 94128 92804 91201 93242 93234
##   [373] 93022 93021 92637 92378 92155 92135 92134 94619 94104 94024 94133 92704
##   [385] 94568 94549 94030 94005 94514 94507 92354 92324 92313 93222 92545 92603
##   [397] 92385 92019 92646 94501 94124 92860 92662 92567 92377 91006 93001 92678
##   [409] 92617 92391 94037 94502 94949 93312 93429 91911 91776 95668 95826 94956
##   [421] 90620 93631 93555 93544 93221 93427 93962 93111 94920 94933 93513 93428
##   [433] 93266 93401 93285 93254 93309 93240 92660 93402 93308 92139 92316 92280
##   [445] 91011 93013 92250 92132 92867 94560 94019 94544 94539 94130 94971 92223
##   [457] 94575 90715 93543 93286 92657 92630 92587 91980 95630 95957 95828 95925
##   [469] 94941 93641 95680 95653 96065 95930 95554 95035 97635 95626 96094 96009
##   [481] 95691 95547 95961 95821 95699 95610 95604 95458 95635 95442 95322 95148
##   [493] 95448 95982 95618 95615 96086 96146 95757 95377 96037 95073 95831 95665
##   [505] 95565 95062 95023 96134 96132 95652 95467 95319 95211 95545 95053 95341
##   [517] 95372 95139 96107 96038 95978 95968 95838 95742 95692 95585 95679 95314
##   [529] 95457 95822 95818 95713 95234 95616 95361 95351 95421 96118 96080 96071
##   [541] 95947 95910 95677 95121 95542 95815 95232 95240 95327 95318 95133 95008
##   [553] 95974 95420 95466 96058 96142 96141 95569 95758 95304 95553 95645 95655
##   [565] 95651 96085 96067 96044 96035 95984 95605 95568 95461 95765 95375 95746
##   [577] 95391 95248 95075 95013 95632 95627 96126 96027 95625 95558 95549 95543
##   [589] 96109 96063 96091 96011 96051 96129 96049 96112 95728 95640 95988 95220
##   [601] 96008 96119 96105 95527 96047 96084 96046 96029 96039 96002 96135 96074
##   [613] 95914 95695 95666 96014 96128 96148 95658 96117 96116 96108 96062 96054
##   [625] 96052 96013 96075 96061 96041 96010 95936 95726 95690 96133 96017 96123
##   [637] 96101 96097 96096 96137 96125 96103 96022 96155 96111 95963 95631 96007
##   [649] 96057 96020 96016 96115 96104 95355 96121 95693 95681 95116 95070 96110
##   [661] 96093 96088 95638 96113 96076 96048 95589 95835 95833 96056 96122 95724
##   [673] 95698 95697 95486 95435 95811 96106 96032 96001 96023 96019 95923 95829
##   [685] 95686 95207 95206 95113 95219 95054 95915 95468 96031 96120 96090 96006
##   [697] 96050 95450 96021 96145 95949 95934 95864 95816 95709 90024 95122 95046
##   [709] 95310 95446 96073 96150 95386 94526 94074 94547 94541 94401 90094 90059
##   [721] 90732 90010 95358 95236 94306 94043 90095 90250 90605 90025 95118 95379
##   [733] 95338 95252 95429 90706 90031 90029 95364 95345 95333 95369 94599 94590
##   [745] 94577 94552 90831 90079 90073 90254 95410 90280 90021 95010 95354 95311
##   [757] 95453 96064 96059 95360 94546 94536 94518 90742 91913 90302 90201 95076
##   [769] 94551 94531 94709 94592 92120 93623 93943 93619 93558 93519 93314 90601
##   [781] 91711 91706 91106 91024 91702 93283 93410 93449 93003 94930 94903 91406
##   [793] 94597 90290 96136 96130 96069 95376 95368 95254 95251 94565 94118 90090
##   [805] 90018 90740 90703 90606 90063 90245 90035 95117 94957 95471 95469 96087
##   [817] 95370 95329 95226 94131 94515 90755 95445 95223 95215 95125 95064 96034
##   [829] 96028 96024 95437 95417 95388 95672 95367 95571 95348 95439 95312 95562
##   [841] 96033 96025 96140 95222 95209 95033 95563 95245 95374 95131 95051 95404
##   [853] 95112 95460 95323 95444 95366 95224 95110 95020 95449 95313 95135 96068
##   [865] 96003 96092 95134 95305 95663 95660 95556 95463 95494 95382 95415 95601
##   [877] 96143 95202 95432 95401 95834 90405 95124 95018 95005 95317 95551 96055
##   [889] 95039 95007 95443 95357 94530 94116 90089 90710 95303 90743 90212 95320
##   [901] 94566 94508 94122 94108 94089 94087 90747 90506 90503 90277 95227 95212
##   [913] 95136 95490 96161 95014 95427 95426 95407 95249 95465 95321 95111 95065
```

```
##  [925] 95041 92590 95132 95620 95587 96040 96015 96124 96114 95126 95546 95511
##  [937] 95488 95428 95340 92356 92111 92110 92059 92624 92264 92128 93305 93223
##  [949] 93648 93606 93441 90631 93653 93647 92127 92210 92201 92071 92028 92887
##  [961] 92808 93292 93452 90504 93640 92338 92270 92251 92243 93424 93405 93244
##  [973] 93654 93528 94014 93646 92583 92252 92070 92024 92021 92701 92105 93433
##  [985] 92119 93010 93725 94904 94704 90815 90814 93635 92585 92320 92278 92267
##  [997] 92266 92242 92036 94707 94702 90071 90602 92129 92327 92706 92691 92257
## [1009] 92106 92283 92625 92870 92408 93624 92505 92328 92688 92592 92065 92027
## [1021] 92020 92679 92586 92543 92108 92363 92256 92025 93522 92277 93518 93657
## [1033] 92530 92384 92305 92304 92241 92882 92683 92649 92107 93117 93656 93432
## [1045] 93703 94020 92382 92282 92276 92260 92211 92101 92629 92315 93313 93202
## [1057] 93015 94111 94305 95383 95363 95334 95326 95970 95946 95926 95951 93665
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##  [5] "LOS ANGELES"     "SAN DIEGO"       "TRINITY"         "PASADENA"
##  [9] "SAN FRANCISCO"   "TULARE"          "MARIN"           "CONTRA COSTA"
## [13] "KERN"            "VENTURA"         "SANTA BARBARA"   "SAN MATEO"
## [17] "SOLANO"          "FRESNO"          "MONTEREY"        "SONOMA"
## [21] "NAPA"            "ALAMEDA"         "MADERA"          "KINGS"
## [25] "BERKELEY"        "INYO"            "SACRAMENTO"      "SAN LUIS OBISPO"
## [29] "SANTA CLARA"     "EL DORADO"       "GLENN"           "YUBA"
## [33] "BUTTE"           "PLACER"          "AMADOR"          "SUTTER"
## [37] "MONO"            "LAKE"            "YOLO"            "HUMBOLDT"
## [41] "SAN JOAQUIN"     "TUOLUMNE"        "CALAVERAS"       "SHASTA"
## [45] NA                "SISKIYOU"        "LASSEN"          "MERCED"
## [49] "SANTA CRUZ"      "SAN BENITO"      "MODOC"           "STANISLAUS"
## [53] "MENDOCINO"       "SIERRA"          "TEHAMA"          "PLUMAS"
## [57] "MARIPOSA"        "DEL NORTE"       "NEVADA"          "ALPINE"
## [61] "LONG BEACH"      "COLUSA"
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