2016 FL

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Data description:This data contains information about bridges in Florida,2016,mainly about recording and coding guide for the structure inventory and appraisal of bridges.

Interest:I'm interested in the underlying relation between each variables,like if the bridge's location(or average daily traffic etc.) has something to do with the year it was built,and so on…

```
library(tidyverse)
```

```
## Loading tidyverse: ggplot2
## Loading tidyverse: tibble
## Loading tidyverse: tidyr
## Loading tidyverse: readr
## Loading tidyverse: purrr
## Loading tidyverse: dplyr
```

```
## Conflicts with tidy packages ----------------------------------------------
```

```
## filter(): dplyr, stats
## lag():    dplyr, stats
```

```
all=read_csv("2016 data.txt")
```

```
## Parsed with column specification:
## cols(
##   .default = col_character(),
##   RECORD_TYPE_005A = col_integer(),
##   ROUTE_PREFIX_005B = col_integer(),
##   SERVICE_LEVEL_005C = col_integer(),
##   DIRECTION_005E = col_integer(),
##   PLACE_CODE_004 = col_integer(),
##   MIN_VERT_CLR_010 = col_double(),
##   KILOPOINT_011 = col_double(),
##   BASE_HWY_NETWORK_012 = col_integer(),
##   SUBROUTE_NO_013B = col_integer(),
##   LAT_016 = col_integer(),
##   DETOUR_KILOS_019 = col_integer(),
##   TOLL_020 = col_integer(),
##   YEAR_BUILT_027 = col_integer(),
##   TRAFFIC_LANES_ON_028A = col_integer(),
##   TRAFFIC_LANES_UND_028B = col_integer(),
##   ADT_029 = col_integer(),
##   YEAR_ADT_030 = col_integer(),
##   DESIGN_LOAD_031 = col_integer(),
##   APPR_WIDTH_MT_032 = col_double(),
##   MEDIAN_CODE_033 = col_integer()
##   # ... with 54 more columns
## )
```

```
## See spec(...) for full column specifications.
```

```
## Warning: 56955 parsing failures.
##   row             col    expected actual
## 13539 DESIGN_LOAD_031 an integer      A
## 14167 DESIGN_LOAD_031 an integer      A
## 15897 DESIGN_LOAD_031 an integer      A
## 15900 DESIGN_LOAD_031 an integer      A
## 15901 DESIGN_LOAD_031 an integer      A
## ..... ............... .......... ......
## See problems(...) for more details.
```

```
fl = filter(all, STATE_CODE_001 == 12)
fl
```

```
## # A tibble: 12,313 × 135
##    STATE_CODE_001 STRUCTURE_NUMBER_008 RECORD_TYPE_005A ROUTE_PREFIX_005B
##             <chr>                <chr>            <int>             <int>
## 1              12               010001                1                 2
## 2              12               010003                1                 4
## 3              12               010006                1                 4
## 4              12               010007                1                 4
## 5              12               010008                1                 4
## 6              12               010009                1                 4
## 7              12               010012                1                 4
## 8              12               010013                1                 4
## 9              12               010014                1                 4
## 10             12               010015                1                 3
## # ... with 12,303 more rows, and 131 more variables:
## #   SERVICE_LEVEL_005C <int>, ROUTE_NUMBER_005D <chr>,
## #   DIRECTION_005E <int>, HIGHWAY_DISTRICT_002 <chr>,
## #   COUNTY_CODE_003 <chr>, PLACE_CODE_004 <int>, FEATURES_DESC_006A <chr>,
## #   CRITICAL_FACILITY_006B <chr>, FACILITY_CARRIED_007 <chr>,
## #   LOCATION_009 <chr>, MIN_VERT_CLR_010 <dbl>, KILOPOINT_011 <dbl>,
## #   BASE_HWY_NETWORK_012 <int>, LRS_INV_ROUTE_013A <chr>,
## #   SUBROUTE_NO_013B <int>, LAT_016 <int>, LONG_017 <chr>,
## #   DETOUR_KILOS_019 <int>, TOLL_020 <int>, MAINTENANCE_021 <chr>,
## #   OWNER_022 <chr>, FUNCTIONAL_CLASS_026 <chr>, YEAR_BUILT_027 <int>,
## #   TRAFFIC_LANES_ON_028A <int>, TRAFFIC_LANES_UND_028B <int>,
## #   ADT_029 <int>, YEAR_ADT_030 <int>, DESIGN_LOAD_031 <int>,
## #   APPR_WIDTH_MT_032 <dbl>, MEDIAN_CODE_033 <int>,
## #   DEGREES_SKEW_034 <int>, STRUCTURE_FLARED_035 <int>,
## #   RAILINGS_036A <chr>, TRANSITIONS_036B <chr>, APPR_RAIL_036C <chr>,
## #   APPR_RAIL_END_036D <chr>, HISTORY_037 <int>, NAVIGATION_038 <chr>,
## #   NAV_VERT_CLR_MT_039 <dbl>, NAV_HORR_CLR_MT_040 <dbl>,
## #   OPEN_CLOSED_POSTED_041 <chr>, SERVICE_ON_042A <int>,
## #   SERVICE_UND_042B <int>, STRUCTURE_KIND_043A <int>,
## #   STRUCTURE_TYPE_043B <chr>, APPR_KIND_044A <int>, APPR_TYPE_044B <chr>,
## #   MAIN_UNIT_SPANS_045 <int>, APPR_SPANS_046 <int>,
## #   HORR_CLR_MT_047 <dbl>, MAX_SPAN_LEN_MT_048 <dbl>,
## #   STRUCTURE_LEN_MT_049 <dbl>, LEFT_CURB_MT_050A <dbl>,
## #   RIGHT_CURB_MT_050B <dbl>, ROADWAY_WIDTH_MT_051 <dbl>,
## #   DECK_WIDTH_MT_052 <dbl>, VERT_CLR_OVER_MT_053 <dbl>,
## #   VERT_CLR_UND_REF_054A <chr>, VERT_CLR_UND_054B <dbl>,
## #   LAT_UND_REF_055A <chr>, LAT_UND_MT_055B <dbl>,
## #   LEFT_LAT_UND_MT_056 <dbl>, DECK_COND_058 <chr>,
## #   SUPERSTRUCTURE_COND_059 <chr>, SUBSTRUCTURE_COND_060 <chr>,
## #   CHANNEL_COND_061 <chr>, CULVERT_COND_062 <chr>,
## #   OPR_RATING_METH_063 <int>, OPERATING_RATING_064 <dbl>,
## #   INV_RATING_METH_065 <chr>, INVENTORY_RATING_066 <dbl>,
## #   STRUCTURAL_EVAL_067 <int>, DECK_GEOMETRY_EVAL_068 <chr>,
## #   UNDCLRENCE_EVAL_069 <chr>, POSTING_EVAL_070 <int>,
## #   WATERWAY_EVAL_071 <chr>, APPR_ROAD_EVAL_072 <int>,
## #   WORK_PROPOSED_075A <int>, WORK_DONE_BY_075B <int>,
## #   IMP_LEN_MT_076 <dbl>, DATE_OF_INSPECT_090 <int>,
## #   INSPECT_FREQ_MONTHS_091 <int>, FRACTURE_092A <chr>,
## #   UNDWATER_LOOK_SEE_092B <chr>, SPEC_INSPECT_092C <chr>,
## #   FRACTURE_LAST_DATE_093A <chr>, UNDWATER_LAST_DATE_093B <chr>,
```

```
## #   SPEC_LAST_DATE_093C <chr>, BRIDGE_IMP_COST_094 <int>,
## #   ROADWAY_IMP_COST_095 <int>, TOTAL_IMP_COST_096 <int>,
## #   YEAR_OF_IMP_097 <int>, OTHER_STATE_CODE_098A <chr>,
## #   OTHER_STATE_PCNT_098B <int>, OTHR_STATE_STRUC_NO_099 <chr>,
## #   STRAHNET_HIGHWAY_100 <int>, PARALLEL_STRUCTURE_101 <chr>,
## #   TRAFFIC_DIRECTION_102 <int>, TEMP_STRUCTURE_103 <lgl>,
## #   HIGHWAY_SYSTEM_104 <int>, ...
```
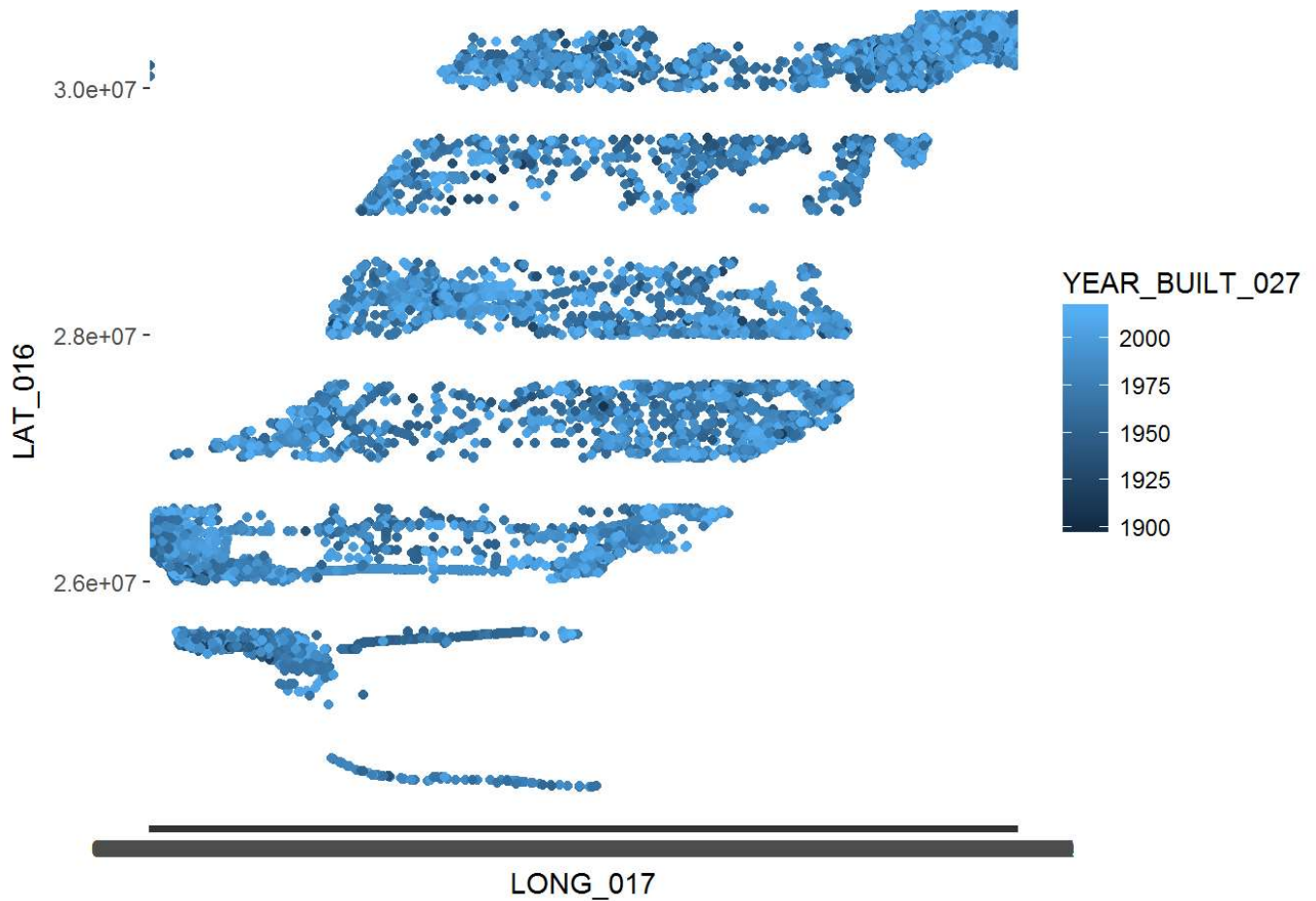
```
ggplot(data = fl) +geom_point(mapping = aes(y = LAT_016, x = LONG_017))
```
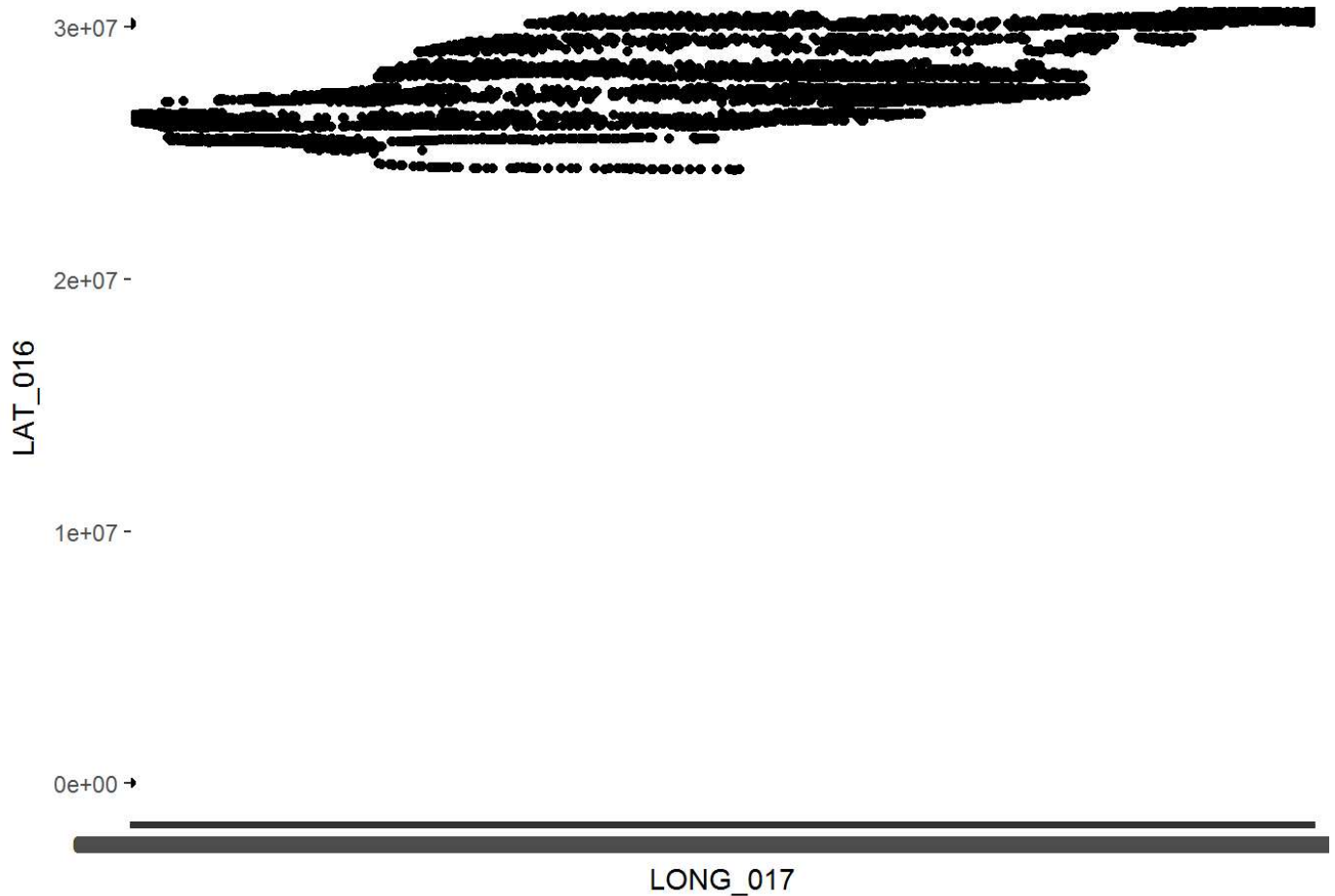


```
fl2 = filter(fl,LAT_016 > 2*10^7)
ggplot(data = fl2) +geom_point(mapping = aes(y = LAT_016, x = LONG_017))
```
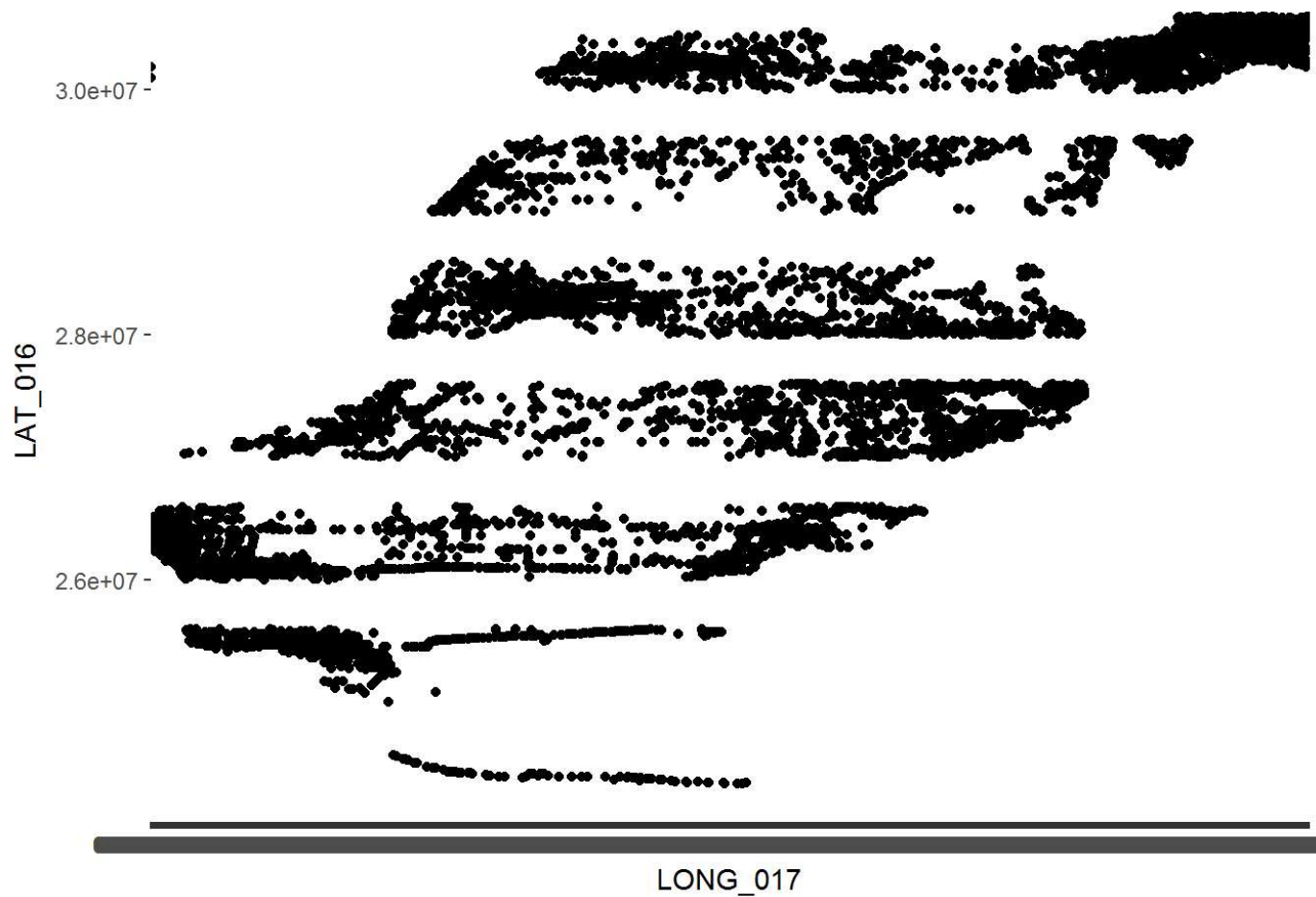
```
ggplot(data = fl2) +geom_point(mapping = aes(y =LAT_016, x = LONG_017 ,col =YEAR_BUILT_0
27))
```

```
ggplot(data = fl2) +geom_point(mapping = aes(y = log(ADT_029), x =YEAR_BUILT_027))
```