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Stat 480 Homework 1

### Question 3

Number of flights for each day of the week:

```
## DayofWeek COUNT(DayOfWeek)
## 1      1      18136111
## 2      2      18061938
## 3      3      18103222
## 4      4      18083800
## 5      5      18091338
## 6      6      15915382
## 7      7      17143178
## 8      0          1
```

There is one missing value in the data so there is an eighth day reported by R (this value should be ignored)

### Question 4

Number of flights for each day for each year:

```
## Year DayofWeek COUNT(DayOfWeek)
## 1 1987      1      190711
## 2 1987      2      190238
## 3 1987      3      190235
## 4 1987      4      200911
## 5 1987      5      184913
## 6 1987      6      173370
## 7 1987      7      181448
## 8 1988      1      755898
## 9 1988      2      757140
## 10 1988     3      757963
## 11 1988     4      753415
## 12 1988     5      766364
## 13 1988     6      697795
## 14 1988     7      713521
## 15 1989     1      733459
## 16 1989     2      735404
## 17 1989     3      735180
## 18 1989     4      731008
## 19 1989     5      731548
## 20 1989     6      668080
## 21 1989     7      706521
## 22 1990     1      781823
## 23 1990     2      770341
## 24 1990     3      770044
## 25 1990     4      766575
## 26 1990     5      765068
## 27 1990     6      694251
## 28 1990     7      722791
## 29 1991     1      747531
```

## 30	1991	2	758840
## 31	1991	3	745401
## 32	1991	4	739321
## 33	1991	5	739313
## 34	1991	6	652991
## 35	1991	7	693528
## 36	1992	1	745442
## 37	1992	2	746435
## 38	1992	3	758213
## 39	1992	4	751417
## 40	1992	5	736609
## 41	1992	6	656920
## 42	1992	7	697121
## 43	1993	1	741084
## 44	1993	2	743108
## 45	1993	3	741988
## 46	1993	4	737026
## 47	1993	5	746019
## 48	1993	6	663606
## 49	1993	7	697670
## 50	1994	1	754636
## 51	1994	2	756532
## 52	1994	3	756864
## 53	1994	4	751537
## 54	1994	5	751531
## 55	1994	6	695245
## 56	1994	7	713703
## 57	1995	1	773467
## 58	1995	2	778389
## 59	1995	3	779452
## 60	1995	4	775836
## 61	1995	5	776992
## 62	1995	6	695286
## 63	1995	7	748013
## 64	1996	1	793071
## 65	1996	2	792543
## 66	1996	3	778193
## 67	1996	4	774533
## 68	1996	5	775343
## 69	1996	6	699527
## 70	1996	7	738773
## 71	1997	1	790298
## 72	1997	2	791617
## 73	1997	3	802130
## 74	1997	4	785731
## 75	1997	5	786342
## 76	1997	6	706198
## 77	1997	7	749527
## 78	1998	1	788003
## 79	1998	2	789241
## 80	1998	3	789076
## 81	1998	4	796404
## 82	1998	5	782299

## 83 1998	6	694528
## 84 1998	7	745170
## 85 1999	1	810519
## 86 1999	2	812478
## 87 1999	3	812857
## 88 1999	4	809243
## 89 1999	5	817145
## 90 1999	6	704006
## 91 1999	7	761636
## 92 2000	1	825186
## 93 2000	2	828523
## 94 2000	3	830751
## 95 2000	4	827740
## 96 2000	5	828944
## 97 2000	6	741662
## 98 2000	7	800241
## 99 2001	1	881379
## 100 2001	2	871342
## 101 2001	3	871772
## 102 2001	4	870683
## 103 2001	5	871140
## 104 2001	6	772781
## 105 2001	7	828683
## 106 2002	1	774285
## 107 2002	2	780556
## 108 2002	3	769799
## 109 2002	4	768973
## 110 2002	5	771174
## 111 2002	6	674222
## 112 2002	7	732350
## 113 2003	1	959114
## 114 2003	2	947126
## 115 2003	3	962100
## 116 2003	4	952542
## 117 2003	5	954701
## 118 2003	6	811260
## 119 2003	7	901697
## 120 2004	1	1044508
## 121 2004	2	1033863
## 122 2004	3	1036521
## 123 2004	4	1060245
## 124 2004	5	1061447
## 125 2004	6	903807
## 126 2004	7	988879
## 127 2005	1	1048968
## 128 2005	2	1037289
## 129 2005	3	1043208
## 130 2005	4	1047749
## 131 2005	5	1050985
## 132 2005	6	919442
## 133 2005	7	992955
## 134 2006	1	1048054
## 135 2006	2	1030322

```
## 136 2006      3      1042952
## 137 2006      4      1052949
## 138 2006      5      1056606
## 139 2006      6       899531
## 140 2006      7      1011508
## 141 2007      1      1112474
## 142 2007      2      1078562
## 143 2007      3      1088858
## 144 2007      4      1097738
## 145 2007      5      1101689
## 146 2007      6       933338
## 147 2007      7      1040556
## 148 2008      1      1036201
## 149 2008      2      1032049
## 150 2008      3      1039665
## 151 2008      4      1032224
## 152 2008      5      1035166
## 153 2008      6       857536
## 154 2008      7       976887
## 155   0       0         1
```

### Question 5

Number of Tail Codes listed as NA for each year:

```
## Year COUNT(*)
## 1 1987 1311826
## 2 1988 5202096
## 3 1989 5041200
## 4 1990 5270893
## 5 1991 5076925
## 6 1992 5092157
## 7 1993 5070501
## 8 1994 5180048
```

For all other years, there are zero tail codes listed as NA

### Question 7

Mean Departure Delays by Day:

```
7.850057 6.855870 7.651197 9.246910 10.151539 6.887023 8.409293
```

Therefore, Tuesday (second index) is the best day to minimize departure delays (6.855870)

Mean Departure Delays by Time:

```
## [1] 9.034998 5.249016 1.999306 2.826125 2.786590 1.531860 1.874374
## [8] 2.840858 4.158435 4.972405 5.722319 6.524786 7.117775 7.940909
## [15] 8.970806 9.992722 10.845703 12.232812 12.806944 13.645763 13.597240
## [22] 12.324804 9.797672 8.331110
```

Therefore, 5:00 AM is the best time to minimize departure delays (1.531860)