

```
library("dplyr")
```

```
airlines <- read.csv("airlines.csv")  
airlines %>% head()
```

A data.frame: 6 × 3

	X	carrier	name
	<int>	<chr>	<chr>
1	1	9E	Endeavor Air Inc.
2	2	AA	American Airlines Inc.
3	3	AS	Alaska Airlines Inc.
4	4	B6	JetBlue Airways
5	5	DL	Delta Air Lines Inc.
6	6	EV	ExpressJet Airlines Inc.

```
flights <- read.csv("flight13.csv")  
flights %>% head()
```

A data.frame: 6 × 19

	year	month	day	dep_time	sched_dep_time	dep_delay	arr_time	sched_arr_time	arr_delay	carrier	flight
	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<int>	<chr>	<int>
1	2013	1	1	517	515	2	830	819	11	UA	1545
2	2013	1	1	533	529	4	850	830	20	UA	1714
3	2013	1	1	542	540	2	923	850	33	AA	1141
4	2013	1	1	544	545	-1	1004	1022	-18	B6	725
5	2013	1	1	554	600	-6	812	837	-25	DL	461
6	2013	1	1	554	558	-4	740	728	12	UA	1696

1. flight from FFK on May 2013 of Delta airline

```
flights %>%
  arrange(carrier) %>%
  select(month, carrier, origin, dest, hour) %>%
  filter( carrier == "DL"
         & origin == "JFK"
         & month == 5 ) %>% head(15)
```

A data.frame: 15 × 5

	month	carrier	origin	dest	hour
	<int>	<chr>	<chr>	<chr>	<int>
1	5	DL	JFK	ATL	6
2	5	DL	JFK	SLC	7
3	5	DL	JFK	SFO	7
4	5	DL	JFK	LAX	7
5	5	DL	JFK	SEA	7
6	5	DL	JFK	LAS	8
7	5	DL	JFK	FLL	8
8	5	DL	JFK	MIA	8
9	5	DL	JFK	TPA	8
10	5	DL	JFK	MCO	8
11	5	DL	JFK	PHX	8
12	5	DL	JFK	SAN	8
13	5	DL	JFK	ATL	8
14	5	DL	JFK	SJU	8
15	5	DL	JFK	LAX	9

2. Max distance and mean distance each airlines

```

flights %>%
  group_by(carrier)%>%
  summarise( max_distance = max(distance),
             mean_distance = mean(distance)) %>%
  arrange( desc(max_distance)) %>%
  left_join(airlines, by = "carrier") %>%
  select(carrier,name, max_distance, mean_distance)

```

A tibble: 16 × 4

carrier	name	max_distance	mean_distance
<chr>	<chr>	<int>	<dbl>
HA	Hawaiian Airlines Inc.	4983	4983.0000
UA	United Air Lines Inc.	4963	1529.1149
AA	American Airlines Inc.	2586	1340.2360
B6	JetBlue Airways	2586	1068.6215
DL	Delta Air Lines Inc.	2586	1236.9012
VX	Virgin America	2586	2499.4822
AS	Alaska Airlines Inc.	2402	2402.0000
US	US Airways Inc.	2153	553.4563
WN	Southwest Airlines Co.	2133	996.2691
F9	Frontier Airlines Inc.	1620	1620.0000
9E	Endeavor Air Inc.	1587	530.2358
EV	ExpressJet Airlines Inc.	1389	562.9917
MQ	Envoy Air	1147	569.5327
OO	SkyWest Airlines Inc.	1008	500.8125
FL	AirTran Airways Corporation	762	664.8294
YV	Mesa Airlines Inc.	544	375.0333

3.How many flights from each airline in November ?

```

flights %>%
  filter(month == 11) %>%
  count(carrier)%>%
  arrange( desc(n)) %>%
  rename( flights = n) %>%
  left_join(airlines, by = "carrier") %>%
  select( carrier,name, flights)

```

A data.frame: 16 × 3

carrier	name	flights
<chr>	<chr>	<int>
UA	United Air Lines Inc.	4854
EV	ExpressJet Airlines Inc.	4471
B6	JetBlue Airways	4289
DL	Delta Air Lines Inc.	3849
AA	American Airlines Inc.	2577
MQ	Envoy Air	2056
US	US Airways Inc.	1699
9E	Endeavor Air Inc.	1595
WN	Southwest Airlines Co.	1033
VX	Virgin America	451
FL	AirTran Airways Corporation	202
F9	Frontier Airlines Inc.	61
AS	Alaska Airlines Inc.	52
YV	Mesa Airlines Inc.	49
HA	Hawaiian Airlines Inc.	25
OO	SkyWest Airlines Inc.	5

4.Total hour of flights from each airline

```
flights %>%
  group_by(carrier) %>%
  summarise( total_hour = sum(hour)) %>%
  left_join(airlines, by = "carrier") %>%
  select( carrier,name, total_hour) %>%
  arrange(desc(total_hour))
```

A tibble: 16 × 3

carrier	name	total_hour
<chr>	<chr>	<int>
UA	United Air Lines Inc.	754410
B6	JetBlue Airways	747278
EV	ExpressJet Airlines Inc.	718187
DL	Delta Air Lines Inc.	636932
AA	American Airlines Inc.	413361
MQ	Envoy Air	358779
9E	Endeavor Air Inc.	266419
US	US Airways Inc.	252595
WN	Southwest Airlines Co.	151366
VX	Virgin America	63876
FL	AirTran Airways Corporation	43960
F9	Frontier Airlines Inc.	9441
YV	Mesa Airlines Inc.	9300
AS	Alaska Airlines Inc.	9013
HA	Hawaiian Airlines Inc.	3324
OO	SkyWest Airlines Inc.	550

5.How many flight in each month of Delta Airline ?

```
flights %>%  
  filter(carrier == "DL") %>%  
  count(month)%>%  
  rename(DELTA_flights = n)
```

A data.frame: 12 × 2

month	DELTA_flights
<int>	<int>
1	3690
2	3444
3	4189
4	4092
5	4082
6	4126
7	4251
8	4318
9	3883
10	4093
11	3849
12	4093