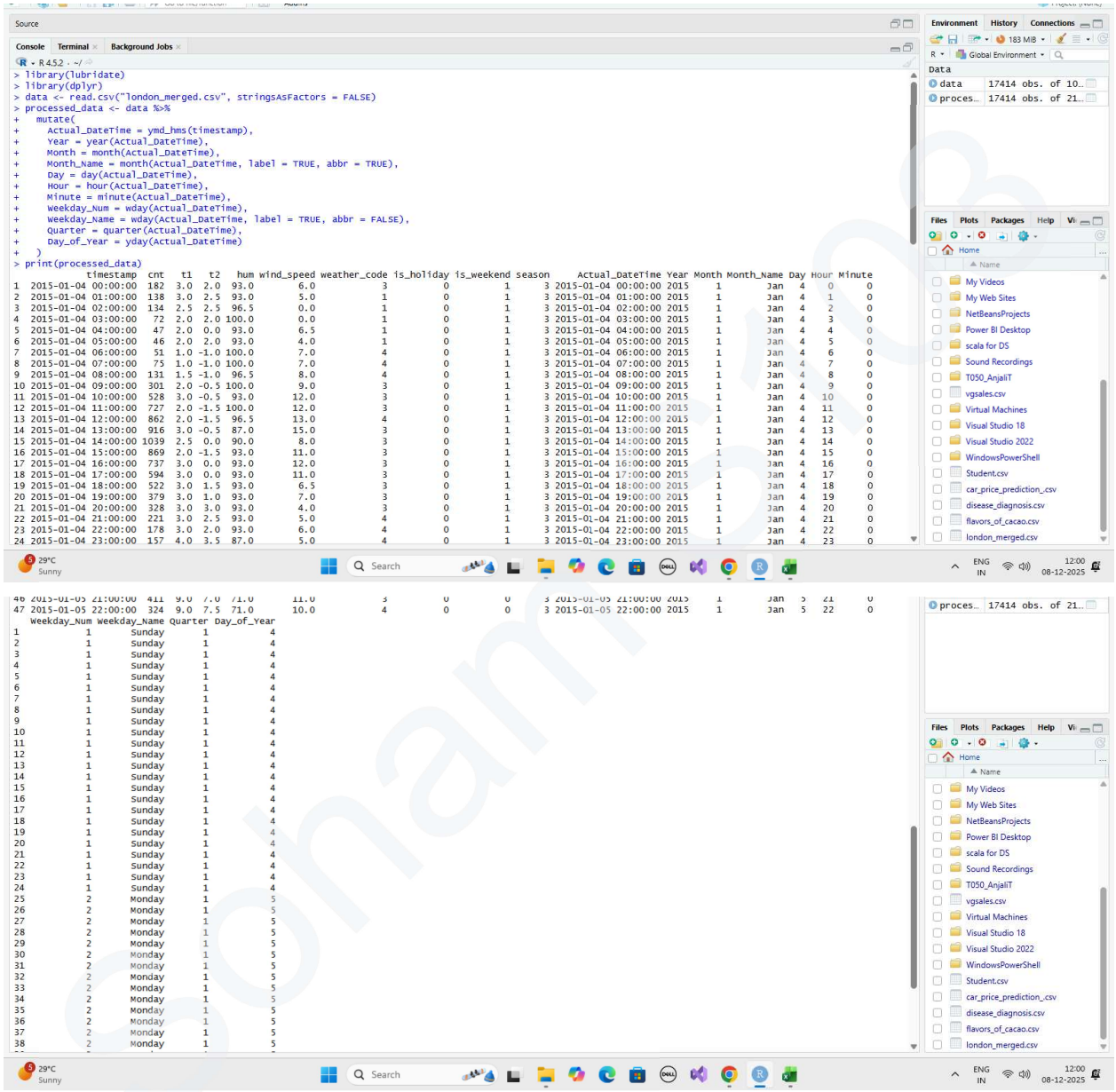
SHETH L.U.J. AND SIR M.V. COLLEGE

SUBJECT:Data Analysis with R

Aim: Extracting date components using lubridate:: functions (R).



```
> library(lubridate)
> library(dplyr)
> data <- read.csv("london_merged.csv", stringsAsFactors = FALSE)
> processed_data <- data %>%
+   mutate(
+     Actual_DateTime = ymd_hms(timestamp),
+     Year = year(Actual_DateTime),
+     Month = month(Actual_DateTime),
+     Month_Name = month(Actual_DateTime, label = TRUE, abbr = TRUE),
+     Day = day(Actual_DateTime),
+     Hour = hour(Actual_DateTime),
+     Minute = minute(Actual_DateTime),
+     Weekday_Num = wday(Actual_DateTime),
+     Weekday_Name = wday(Actual_DateTime, label = TRUE, abbr = FALSE),
+     Quarter = quarter(Actual_DateTime),
+     Day_of_Year = yday(Actual_DateTime)
+   )
> print(processed_data)
```

	timestamp	cnt	t1	t2	hum	wind_speed	weather_code	is_holiday	is_weekend	season	Actual_DateTime	Year	Month	Month_Name	Day	Hour	Minute
1	2015-01-04 00:00:00	182	3.0	2.0	93.0	6.0	3	0	1	3	2015-01-04 00:00:00	2015	1	Jan	4	0	0
2	2015-01-04 01:00:00	138	3.0	2.5	93.0	5.0	1	0	1	3	2015-01-04 01:00:00	2015	1	Jan	4	1	0
3	2015-01-04 02:00:00	134	2.5	2.5	96.5	0.0	1	0	1	3	2015-01-04 02:00:00	2015	1	Jan	4	2	0
4	2015-01-04 03:00:00	72	2.0	2.0	100.0	0.0	1	0	1	3	2015-01-04 03:00:00	2015	1	Jan	4	3	0
5	2015-01-04 04:00:00	47	2.0	0.0	93.0	6.5	1	0	1	3	2015-01-04 04:00:00	2015	1	Jan	4	4	0
6	2015-01-04 05:00:00	46	2.0	2.0	93.0	4.0	1	0	1	3	2015-01-04 05:00:00	2015	1	Jan	4	5	0
7	2015-01-04 06:00:00	51	1.0	-1.0	100.0	7.0	4	0	1	3	2015-01-04 06:00:00	2015	1	Jan	4	6	0
8	2015-01-04 07:00:00	75	1.0	-1.0	100.0	7.0	4	0	1	3	2015-01-04 07:00:00	2015	1	Jan	4	7	0
9	2015-01-04 08:00:00	131	1.5	-1.0	96.5	8.0	4	0	1	3	2015-01-04 08:00:00	2015	1	Jan	4	8	0
10	2015-01-04 09:00:00	301	2.0	-0.5	100.0	9.0	3	0	1	3	2015-01-04 09:00:00	2015	1	Jan	4	9	0
11	2015-01-04 10:00:00	528	3.0	-0.5	93.0	12.0	3	0	1	3	2015-01-04 10:00:00	2015	1	Jan	4	10	0
12	2015-01-04 11:00:00	727	2.0	-1.5	100.0	12.0	3	0	1	3	2015-01-04 11:00:00	2015	1	Jan	4	11	0
13	2015-01-04 12:00:00	862	2.0	-1.5	96.5	13.0	4	0	1	3	2015-01-04 12:00:00	2015	1	Jan	4	12	0
14	2015-01-04 13:00:00	916	3.0	-0.5	87.0	15.0	3	0	1	3	2015-01-04 13:00:00	2015	1	Jan	4	13	0
15	2015-01-04 14:00:00	1039	2.5	0.0	90.0	8.0	3	0	1	3	2015-01-04 14:00:00	2015	1	Jan	4	14	0
16	2015-01-04 15:00:00	869	2.0	-1.5	93.0	11.0	3	0	1	3	2015-01-04 15:00:00	2015	1	Jan	4	15	0
17	2015-01-04 16:00:00	737	3.0	0.0	93.0	12.0	3	0	1	3	2015-01-04 16:00:00	2015	1	Jan	4	16	0
18	2015-01-04 17:00:00	594	3.0	0.0	93.0	11.0	3	0	1	3	2015-01-04 17:00:00	2015	1	Jan	4	17	0
19	2015-01-04 18:00:00	522	3.0	1.5	93.0	6.5	3	0	1	3	2015-01-04 18:00:00	2015	1	Jan	4	18	0
20	2015-01-04 19:00:00	379	3.0	1.0	93.0	7.0	3	0	1	3	2015-01-04 19:00:00	2015	1	Jan	4	19	0
21	2015-01-04 20:00:00	328	3.0	3.0	93.0	4.0	3	0	1	3	2015-01-04 20:00:00	2015	1	Jan	4	20	0
22	2015-01-04 21:00:00	221	3.0	2.5	93.0	5.0	4	0	1	3	2015-01-04 21:00:00	2015	1	Jan	4	21	0
23	2015-01-04 22:00:00	178	3.0	2.0	93.0	6.0	4	0	1	3	2015-01-04 22:00:00	2015	1	Jan	4	22	0
24	2015-01-04 23:00:00	157	4.0	3.5	87.0	5.0	4	0	1	3	2015-01-04 23:00:00	2015	1	Jan	4	23	0

46	2015-01-05 21:00:00	411	9.0	7.0	71.0	11.0	3	0	0	3	2015-01-05 21:00:00	2015	1	Jan	5	21	0
47	2015-01-05 22:00:00	324	9.0	7.5	71.0	10.0	4	0	0	3	2015-01-05 22:00:00	2015	1	Jan	5	22	0

	Weekday_Num	Weekday_Name	Quarter	Day_of_Year
1	1	Sunday	1	4
2	1	Sunday	1	4
3	1	Sunday	1	4
4	1	Sunday	1	4
5	1	Sunday	1	4
6	1	Sunday	1	4
7	1	Sunday	1	4
8	1	Sunday	1	4
9	1	Sunday	1	4
10	1	Sunday	1	4
11	1	Sunday	1	4
12	1	Sunday	1	4
13	1	Sunday	1	4
14	1	Sunday	1	4
15	1	Sunday	1	4
16	1	Sunday	1	4
17	1	Sunday	1	4
18	1	Sunday	1	4
19	1	Sunday	1	4
20	1	Sunday	1	4
21	1	Sunday	1	4
22	1	Sunday	1	4
23	1	Sunday	1	4
24	1	Sunday	1	4
25	2	Monday	1	5
26	2	Monday	1	5
27	2	Monday	1	5
28	2	Monday	1	5
29	2	Monday	1	5
30	2	Monday	1	5
31	2	Monday	1	5
32	2	Monday	1	5
33	2	Monday	1	5
34	2	Monday	1	5
35	2	Monday	1	5
36	2	Monday	1	5
37	2	Monday	1	5
38	2	Monday	1	5

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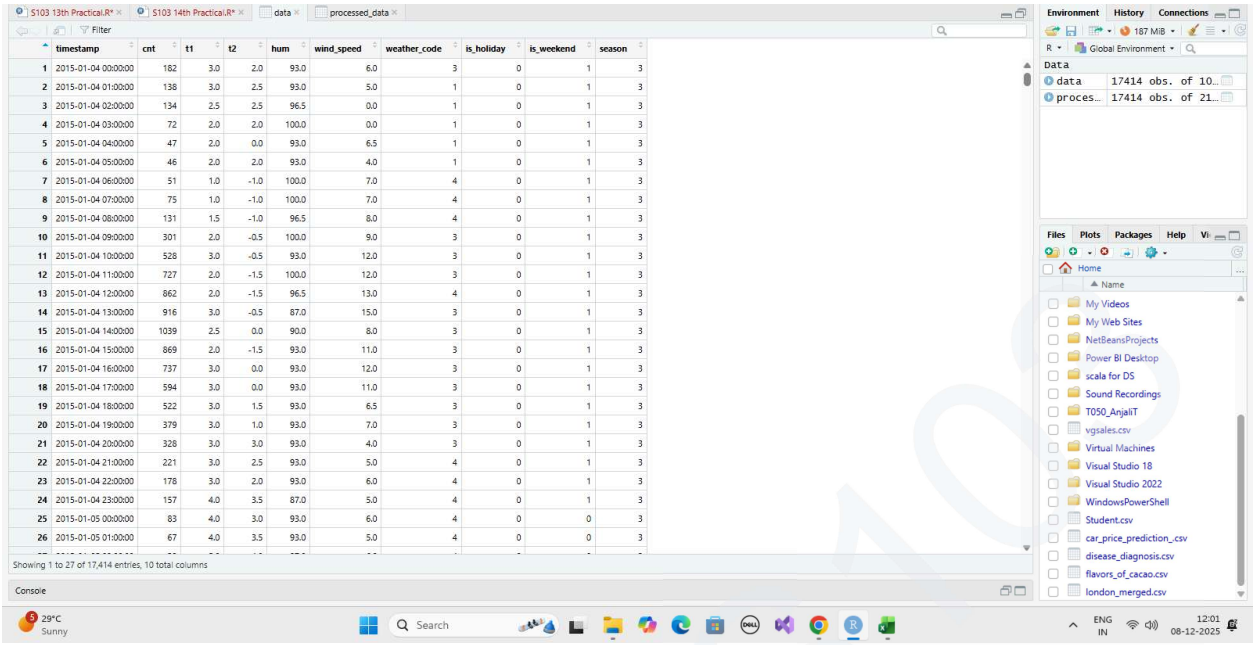
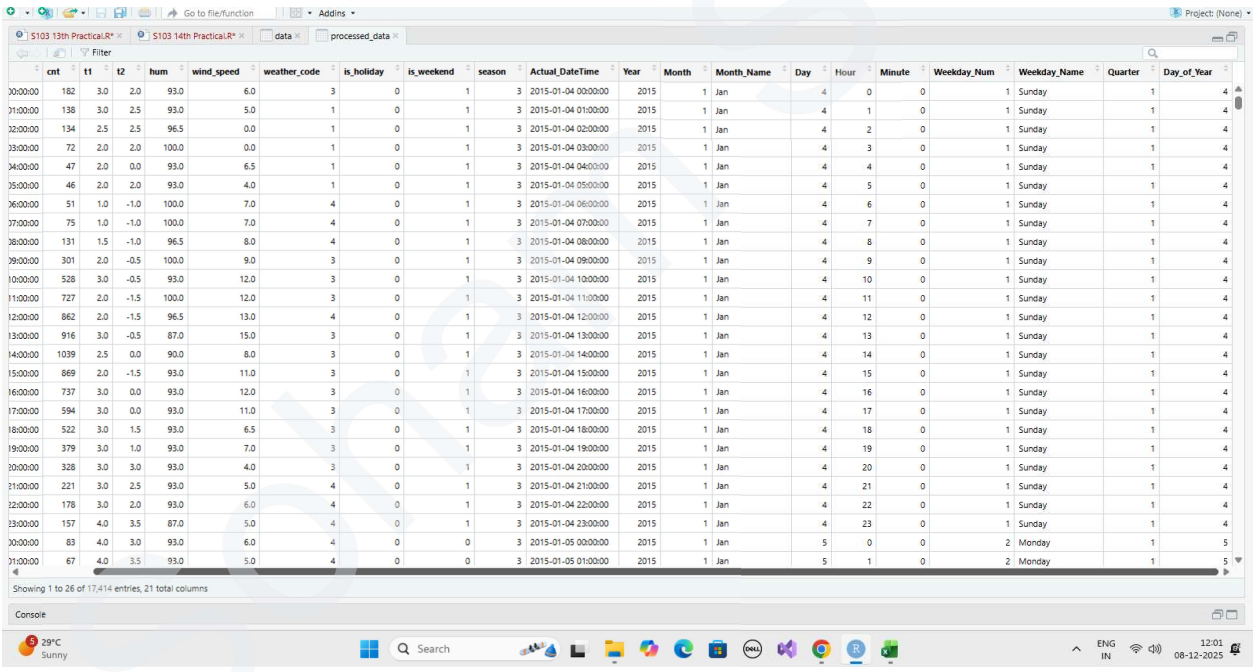
SUBJECT:Data Analysis with R



	timestamp	cnt	t1	t2	hum	wind_speed	weather_code	is_holiday	is_weekend	season
1	2015-01-04 00:00:00	182	3.0	2.0	93.0	6.0	3	0	1	3
2	2015-01-04 01:00:00	138	3.0	2.5	93.0	5.0	1	0	1	3
3	2015-01-04 02:00:00	134	2.5	2.5	96.5	0.0	1	0	1	3
4	2015-01-04 03:00:00	72	2.0	2.0	100.0	0.0	1	0	1	3
5	2015-01-04 04:00:00	47	2.0	0.0	93.0	6.5	1	0	1	3
6	2015-01-04 05:00:00	46	2.0	2.0	93.0	4.0	1	0	1	3
7	2015-01-04 06:00:00	51	1.0	-1.0	100.0	7.0	4	0	1	3
8	2015-01-04 07:00:00	75	1.0	-1.0	100.0	7.0	4	0	1	3
9	2015-01-04 08:00:00	131	1.5	-1.0	96.5	8.0	4	0	1	3
10	2015-01-04 09:00:00	301	2.0	-0.5	100.0	9.0	3	0	1	3
11	2015-01-04 10:00:00	528	3.0	-0.5	93.0	12.0	3	0	1	3
12	2015-01-04 11:00:00	727	2.0	-1.5	100.0	12.0	3	0	1	3
13	2015-01-04 12:00:00	862	2.0	-1.5	96.5	13.0	4	0	1	3
14	2015-01-04 13:00:00	916	3.0	-0.5	87.0	15.0	3	0	1	3
15	2015-01-04 14:00:00	1039	2.5	0.0	90.0	8.0	3	0	1	3
16	2015-01-04 15:00:00	869	2.0	-1.5	93.0	11.0	3	0	1	3
17	2015-01-04 16:00:00	737	3.0	0.0	93.0	12.0	3	0	1	3
18	2015-01-04 17:00:00	594	3.0	0.0	93.0	11.0	3	0	1	3
19	2015-01-04 18:00:00	522	3.0	1.5	93.0	6.5	3	0	1	3
20	2015-01-04 19:00:00	379	3.0	1.0	93.0	7.0	3	0	1	3
21	2015-01-04 20:00:00	328	3.0	3.0	93.0	4.0	3	0	1	3
22	2015-01-04 21:00:00	221	3.0	2.5	93.0	5.0	4	0	1	3
23	2015-01-04 22:00:00	178	3.0	2.0	93.0	6.0	4	0	1	3
24	2015-01-04 23:00:00	157	4.0	3.5	87.0	5.0	4	0	1	3
25	2015-01-05 00:00:00	83	4.0	3.0	93.0	6.0	4	0	0	3
26	2015-01-05 01:00:00	67	4.0	3.5	93.0	5.0	4	0	0	3



	cnt	t1	t2	hum	wind_speed	weather_code	is_holiday	is_weekend	season	Actual_DateTime	Year	Month	Month_Name	Day	Hour	Minute	Weekday_Num	Weekday_Name	Quarter	Day_of_Year
00:00:00	182	3.0	2.0	93.0	6.0	3	0	1	3	2015-01-04 00:00:00	2015	1	Jan	4	0	0	1	Sunday	1	4
01:00:00	138	3.0	2.5	93.0	5.0	1	0	1	3	2015-01-04 01:00:00	2015	1	Jan	4	1	0	1	Sunday	1	4
02:00:00	134	2.5	2.5	96.5	0.0	1	0	1	3	2015-01-04 02:00:00	2015	1	Jan	4	2	0	1	Sunday	1	4
03:00:00	72	2.0	2.0	100.0	0.0	1	0	1	3	2015-01-04 03:00:00	2015	1	Jan	4	3	0	1	Sunday	1	4
04:00:00	47	2.0	0.0	93.0	6.5	1	0	1	3	2015-01-04 04:00:00	2015	1	Jan	4	4	0	1	Sunday	1	4
05:00:00	46	2.0	2.0	93.0	4.0	1	0	1	3	2015-01-04 05:00:00	2015	1	Jan	4	5	0	1	Sunday	1	4
06:00:00	51	1.0	-1.0	100.0	7.0	4	0	1	3	2015-01-04 06:00:00	2015	1	Jan	4	6	0	1	Sunday	1	4
07:00:00	75	1.0	-1.0	100.0	7.0	4	0	1	3	2015-01-04 07:00:00	2015	1	Jan	4	7	0	1	Sunday	1	4
08:00:00	131	1.5	-1.0	96.5	8.0	4	0	1	3	2015-01-04 08:00:00	2015	1	Jan	4	8	0	1	Sunday	1	4
09:00:00	301	2.0	-0.5	100.0	9.0	3	0	1	3	2015-01-04 09:00:00	2015	1	Jan	4	9	0	1	Sunday	1	4
10:00:00	528	3.0	-0.5	93.0	12.0	3	0	1	3	2015-01-04 10:00:00	2015	1	Jan	4	10	0	1	Sunday	1	4
11:00:00	727	2.0	-1.5	100.0	12.0	3	0	1	3	2015-01-04 11:00:00	2015	1	Jan	4	11	0	1	Sunday	1	4
12:00:00	862	2.0	-1.5	96.5	13.0	4	0	1	3	2015-01-04 12:00:00	2015	1	Jan	4	12	0	1	Sunday	1	4
13:00:00	916	3.0	-0.5	87.0	15.0	3	0	1	3	2015-01-04 13:00:00	2015	1	Jan	4	13	0	1	Sunday	1	4
14:00:00	1039	2.5	0.0	90.0	8.0	3	0	1	3	2015-01-04 14:00:00	2015	1	Jan	4	14	0	1	Sunday	1	4
15:00:00	869	2.0	-1.5	93.0	11.0	3	0	1	3	2015-01-04 15:00:00	2015	1	Jan	4	15	0	1	Sunday	1	4
16:00:00	737	3.0	0.0	93.0	12.0	3	0	1	3	2015-01-04 16:00:00	2015	1	Jan	4	16	0	1	Sunday	1	4
17:00:00	594	3.0	0.0	93.0	11.0	3	0	1	3	2015-01-04 17:00:00	2015	1	Jan	4	17	0	1	Sunday	1	4
18:00:00	522	3.0	1.5	93.0	6.5	3	0	1	3	2015-01-04 18:00:00	2015	1	Jan	4	18	0	1	Sunday	1	4
19:00:00	379	3.0	1.0	93.0	7.0	3	0	1	3	2015-01-04 19:00:00	2015	1	Jan	4	19	0	1	Sunday	1	4
20:00:00	328	3.0	3.0	93.0	4.0	3	0	1	3	2015-01-04 20:00:00	2015	1	Jan	4	20	0	1	Sunday	1	4
21:00:00	221	3.0	2.5	93.0	5.0	4	0	1	3	2015-01-04 21:00:00	2015	1	Jan	4	21	0	1	Sunday	1	4
22:00:00	178	3.0	2.0	93.0	6.0	4	0	1	3	2015-01-04 22:00:00	2015	1	Jan	4	22	0	1	Sunday	1	4
23:00:00	157	4.0	3.5	87.0	5.0	4	0	1	3	2015-01-04 23:00:00	2015	1	Jan	4	23	0	1	Sunday	1	4
00:00:00	83	4.0	3.0	93.0	6.0	4	0	0	3	2015-01-05 00:00:00	2015	1	Jan	5	0	0	2	Monday	1	5
01:00:00	67	4.0	3.5	93.0	5.0	4	0	0	3	2015-01-05 01:00:00	2015	1	Jan	5	1	0	2	Monday	1	5

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