

# Assignment 10 Solution

In this Assignment we use RSQLite and Lubridate to create tables in SQL

```
ipak <- function(pkg){
  new.pkg <- pkg[!(pkg %in% installed.packages()[, "Package"])]
  if (length(new.pkg))
    install.packages(new.pkg, dependencies = TRUE)
  sapply(pkg, require, character.only = TRUE)
}

packages <- c("RSQLite", "lubridate")
ipak(packages)

getwd()
setwd("C:/Users/Neha/Desktop")

BirdStrikesData <- read.csv("Bird Strikes.csv", header = T, sep = ",")

db <- dbConnect(SQLite(), dbname="BirdStrikes.sqlite")
dbSendQuery(conn = db, "PRAGMA foreign_keys = ON")

dbSendQuery(conn = db, "CREATE TABLE AircraftFeatures(Aircraft_type TEXT,
No_of_Engines INTEGER, Aircraft_Model TEXT, Flight_No INTEGER)")
AircraftFeatures = cbind.data.frame(BirdStrikesData$Aircraft..Type,
BirdStrikesData$Aircraft..Number.of.engines, BirdStrikesData$Aircraft..Make.Model,
BirdStrikesData$Aircraft..Flight.Number)
dbWriteTable(conn=db, name="AircraftFeatures", AircraftFeatures, append=T,
row.names=F)

dbSendQuery(conn = db, "CREATE TABLE Airport (Airport_Name TEXT, Flight_No INTEGER,
Operator INTEGER, Location TEXT)")
Airport = cbind.data.frame(BirdStrikesData$Airport..Name,
BirdStrikesData$Aircraft..Flight.Number, BirdStrikesData$Aircraft..Airline.Operator,
BirdStrikesData$Location..Nearby.if.en.route )
dbWriteTable(conn=db, name="Airport", Airport, append=T, row.names=F)

dbSendQuery(conn = db, "CREATE TABLE FlightParameter (Flight_date TEXT, Time INTEGER,
Feet_above_altitude INTEGER, phase_of_flight INTEGER, Flight_No INTEGER, Record_id
INTEGER)")
FlightParameter = cbind.data.frame(BirdStrikesData$FlightDate,
BirdStrikesData$When..Time..HHMM., BirdStrikesData$Feet.above.ground,
BirdStrikesData$When..Phase.of.flight, BirdStrikesData$Aircraft..Flight.Number,
BirdStrikesData$Record.ID )
dbWriteTable(conn=db, name="FlightParameter", FlightParameter, append=T, row.names=F)

dbSendQuery(conn = db, "CREATE TABLE Wildlife (Species TEXT, Size INTEGER, Location
TEXT)")
```

# Assignment 10 Solution

```
Wildlife = cbind.data.frame(BirdStrikesData$Wildlife..Species,  
BirdStrikesData$Wildlife..Size, BirdStrikesData$Location..Nearby.if.en.route)  
dbWriteTable(conn=db, name="Wildlife", Wildlife, append=T, row.names=F)
```

```
dbSendQuery(conn = db, "CREATE TABLE BirdStrike (Number_struck INTEGER, Size INTEGER,  
Remains_obtained INTEGER, Record_id INTEGER)")  
BirdStrike = cbind.data.frame(BirdStrikesData$Wildlife..Number.struck,  
BirdStrikesData$Wildlife..Size, BirdStrikesData$Remains.of.wildlife.collected.,  
BirdStrikesData$Record.ID )  
dbWriteTable(conn=db, name="BirdStrike", BirdStrike, append=T, row.names=F)
```

```
dbSendQuery(conn = db, "CREATE TABLE Effect(Impact_to_flight TEXT, Indicated_Damage,  
Others TEXT)")  
Effect = cbind.data.frame(BirdStrikesData$Effect..Impact.to.flight,  
BirdStrikesData$Effect..Indicated.Damage, BirdStrikesData$Effect..Other)  
dbWriteTable(conn=db, name="Effect", Effect , append=T, row.names=F)
```

```
dbSendQuery(conn = db, "CREATE TABLE Condition(Precipitation TEXT, Sky TEXT, Date  
INTEGER) ")  
Condition = cbind.data.frame(BirdStrikesData$Conditions..Precipitation,  
BirdStrikesData$Conditions..Sky, BirdStrikesData$FlightDate)  
dbWriteTable(conn=db, name="Condition", Condition , append=T, row.names=F)
```

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The screen shots of the data retrieved are :

				99,404 observations of 4 variables
	BirdStrikesData\$Aircraft..Type	BirdStrikesData\$Aircraft..Number.of.engines	BirdStrikesData\$Aircraft..Make.Model	BirdStrikesData\$Aircraft..Flight.Nu
1	Airplane	2	B-757-200	586
2	Airplane	2	B-737-300	
3	Airplane	2	B-737-300	
4	Airplane	3	B-727-200	
5			UNKNOWN	
6	Airplane	2	C-550	
7	Airplane	3	B-727-200	
8	Airplane	2	CITATION II	
9	Airplane	2	DA-2000	
0	Airplane	2	B-737-500	
1	Airplane	2	B-737-300	665
2			UNKNOWN	
3	Airplane	2	HAWKER 800	
4	Airplane	2	MD-80	
5	Airplane	2	B-737-400	
6	Airplane	2	B-737	
7	Airplane	2	B-767-300	
8	Airplane	2	EMB-120	
9	Airplane	2	C-650	
0	Airplane	2	DC-9	
1	Airplane	2	B-737-700	
2	Airplane	2	B-737-800	
3	Airplane	2	B-737-200	
4	Airplane	2	B-777-200	
5	Airplane	2	LEARJET-55	
6	Airplane	2	ATR-42	
7	Helicopter	1	BELL-206	

## Assignment 10 Solution

	BirdStrikesData\$Airport..Name	BirdStrikesData\$Aircraft..Flight.Number	BirdStrikesData\$Aircraft..Airline.Operator
1	NEWARK LIBERTY INTL ARPT	586	CONTINENTAL AIRLINES
2	UNKNOWN		UNITED AIRLINES
3	DENVER INTL AIRPORT		UNITED AIRLINES
4	CHICAGO O'HARE INTL ARPT		UNITED AIRLINES
5	JOHN F KENNEDY INTL		UNKNOWN
6	UNKNOWN		US CUSTOMS AND BORDER PROTECTION
7	UNKNOWN		AMERICAN AIRLINES
8	CINCINNATI MUNI ARPT-LUNKEN FIELD		BUSINESS
9	MIAMI INTL		BUSINESS
10	SAN FRANCISCO INTL ARPT		UNITED AIRLINES
11	SALT LAKE CITY INTL	665	DELTA AIR LINES
12	MIAMI INTL		UNKNOWN
13	SOUTHWEST FLORIDA INTL ARPT		BUSINESS
14	KANSAS CITY INTL		TRANS WORLD AIRLINES
15	NASHVILLE INTL		US AIRWAYS*
16	SAN ANTONIO INTL		SOUTHWEST AIRLINES
17	SALT LAKE CITY INTL		DELTA AIR LINES
18	PENSACOLA REGIONAL		COMAIR AIRLINES
19	THEODORE FRANCIS GREEN STATE		BUSINESS
20	ATLANTA INTL		AIRTRAN AIRWAYS
21	BALTIMORE WASH INTL		SOUTHWEST AIRLINES
22	MINETA SAN JOSE INTL		AMERICAN AIRLINES
23	SAN ANTONIO INTL		SOUTHWEST AIRLINES
24	UNKNOWN		UNITED AIRLINES
25	TETERBORO AIRPORT		BUSINESS
26	LAFAYETTE REGIONAL (LA)		CONTINENTAL AIRLINES
27	UNKNOWN		PHI INC

# Assignment 10 Solution

	BirdStrikesData\$FlightDate	BirdStrikesData\$When..HHMM.	BirdStrikesData\$Feet.above.ground	BirdStrikesData\$When..Phase.of.flight	BirdStrikesData\$Aircraft..Flight.Number	BirdStrikesData\$Record.ID
1	1/1/2000 0:00	943	0	Take-off run	586	200508
2	1/1/2000 0:00	NA				206593
3	1/1/2000 0:00	NA		Climb		206594
4	1/1/2000 0:00	NA		Approach		204095
5	1/1/2000 0:00	NA				202963
6	1/1/2000 0:00	1300	1,000	En Route		203122
7	1/1/2000 0:00	NA	0	Take-off run		204787
8	1/2/2000 0:00	NA	0	Landing Roll		201162
9	1/2/2000 0:00	1105	2,000	Approach		203926
10	1/2/2000 0:00	1027	0	Take-off run		201161
11	1/2/2000 0:00	1345	0	Landing Roll	665	201559
12	1/2/2000 0:00	NA				205149
13	1/2/2000 0:00	NA	200	Approach		201026
14	1/2/2000 0:00	NA	350	Approach		200142
15	1/3/2000 0:00	740	800	Climb		208776
16	1/3/2000 0:00	2000		Climb		201027
17	1/3/2000 0:00	1530		Approach		201859
18	1/3/2000 0:00	1443	0	Landing Roll		202643
19	1/3/2000 0:00	1650	500	Approach		200378
20	1/3/2000 0:00	NA	1,800	Climb		203735
21	1/4/2000 0:00	NA	50	Climb		205029
22	1/4/2000 0:00	1312	100	Climb		208470
23	1/4/2000 0:00	NA	1,400	Approach		207197
24	1/4/2000 0:00	NA				209300
25	1/4/2000 0:00	2000	50	Climb		204251
26	1/4/2000 0:00	NA	100	Approach		204764
27	1/4/2000 0:00	810	100	Approach		206124
28	1/4/2000 0:00	NA				201102