```
close all
clearvars
clear all
clc
CodigoUNI = '20190521A';
nCUNI = length(CodigoUNI);
Suma2DigitosCUNI = sum(str2num(CodigoUNI(nCUNI-2))+str2num(CodigoUNI(nCUNI-1)));
Archivo = "StormEvents_201" + num2str(Suma2DigitosCUNI-1) + ".csv";
ArchivoTabla = readtable(Archivo);
DataArchivo = importStormData(Archivo);
```

INCISO 1

```
DataArchivo.State = ArchivoTabla.State;
nState = width(DataArchivo);
DataArchivo.Total_Damage_Cost = DataArchivo.Property_Cost + DataArchivo.Crop_Cost;
nTDC = width(DataArchivo);
TotalDamageCost = DataArchivo(not(isnan(DataArchivo.Total_Damage_Cost)),[nState:nTDC-nState:nTD
sortrows(TotalDamageCost,"Total_Damage_Cost","descend")
```

ans = 49451×2 table

	State	Total_Damage_Cost
1	'NEW JERSEY'	7.5000e+09
2	'NEW JERSEY'	5.0000e+09
3	'NEW JERSEY'	5.0000e+09
4	'NEW JERSEY'	2.5000e+09
5	'NEW JERSEY'	1.5000e+09
6	'TEXAS'	900000000
7	'NEW JERSEY'	500000000
8	'NEW JERSEY'	500000000
9	'NEW JERSEY'	500000000
10	'IDAHO'	472000000
11	'TEXAS'	400003000
12	'COLORADO'	400000000
13	'COLORADO'	400000000
14	'NEW JERSEY'	300000000
15	'NEW JERSEY'	250000000
16	'TEXAS'	201000000
17	'TEXAS'	200000000
18	'TEXAS'	200000000
19	'LOUISIANA'	164000000
20	'NEW JERSEY'	150000000

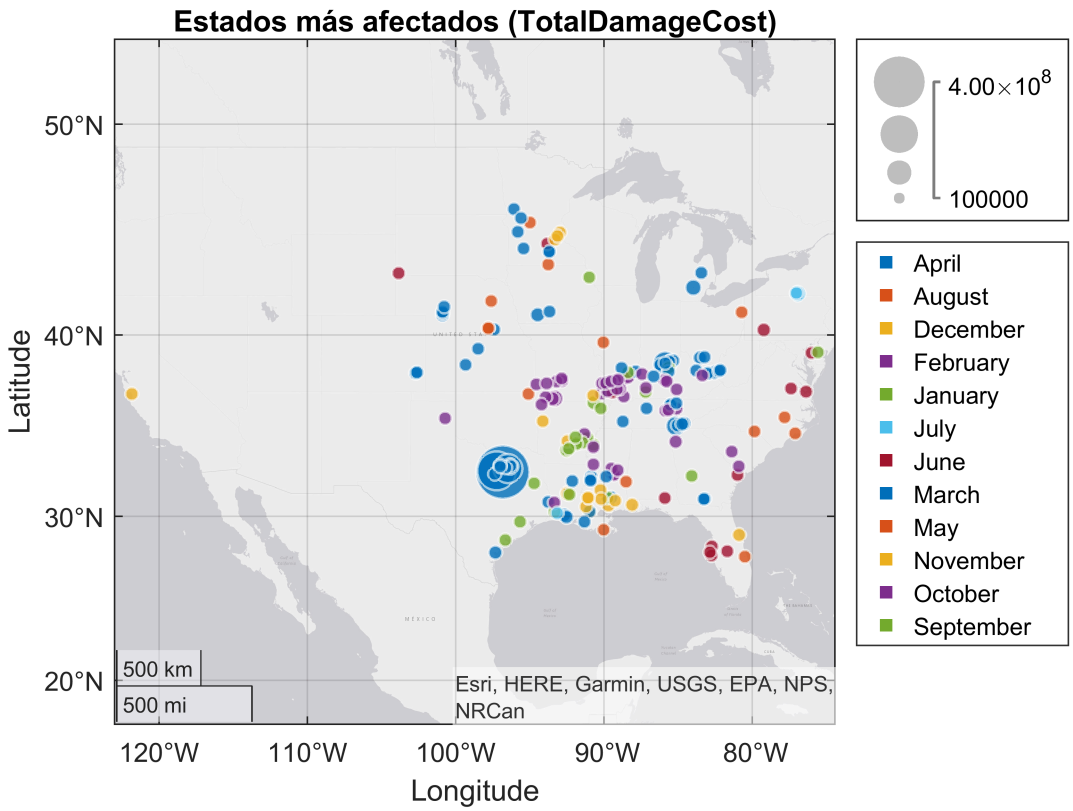
	State	Total_Damage_Cost
21	'NEW JERSEY'	150000000
22	'NEW JERSEY'	129000000
23	'NEW JERSEY'	125000000
24	'LOUISIANA'	107600000
25	'NEW JERSEY'	100000000
26	'NEW JERSEY'	100000000
27	'NEW JERSEY'	100000000
28	'NEW JERSEY'	100000000
29	'TEXAS'	100000000
30	'IOWA'	90000000
31	'IOWA'	90000000
32	'ILLINOIS'	72600000
33	'ILLINOIS'	65900000
34	'ILLINOIS'	65500000
35	'ILLINOIS'	65400000
36	'LOUISIANA'	62500000
37	'NEBRASKA'	60000000
38	'INDIANA'	55000000
39	'OKLAHOMA'	55000000
40	'ILLINOIS'	53800000
41	'ILLINOIS'	52100000
42	'TEXAS'	50000000
43	'NEVADA'	50000000
44	'NEW JERSEY'	50000000
45	'NEW JERSEY'	50000000
46	'NEW JERSEY'	50000000
47	'NEW JERSEY'	50000000
48	'OKLAHOMA'	50000000
49	'NEBRASKA'	50000000
50	'TEXAS'	50000000
51	'TEXAS'	50000000
52	'TEXAS'	50000000
53	'LOUISIANA'	49800000
54	'ARKANSAS'	48000000

	State	Total_Damage_Cost
55	'ILLINOIS'	46300000
56	'IOWA'	45000000
57	'IOWA'	45000000
58	'IOWA'	45000000
59	'IOWA'	45000000
60	'IOWA'	45000000
61	'IOWA'	45000000
62	'IOWA'	45000000
63	'IOWA'	45000000
64	'IOWA'	45000000
65	'IOWA'	45000000
66	'IOWA'	45000000
67	'IOWA'	45000000
68	'IOWA'	45000000
69	'IOWA'	45000000
70	'IOWA'	45000000
71	'IOWA'	45000000
72	'IOWA'	45000000
73	'IOWA'	45000000
74	'IOWA'	45000000
75	'IOWA'	45000000
76	'IOWA'	45000000
77	'IOWA'	45000000
78	'IOWA'	45000000
79	'IOWA'	45000000
80	'IOWA'	45000000
81	'IOWA'	45000000
82	'IOWA'	45000000
83	'IOWA'	45000000
84	'IOWA'	45000000
85	'IOWA'	45000000
86	'IOWA'	45000000
87	'IOWA'	45000000
88	'IOWA'	45000000

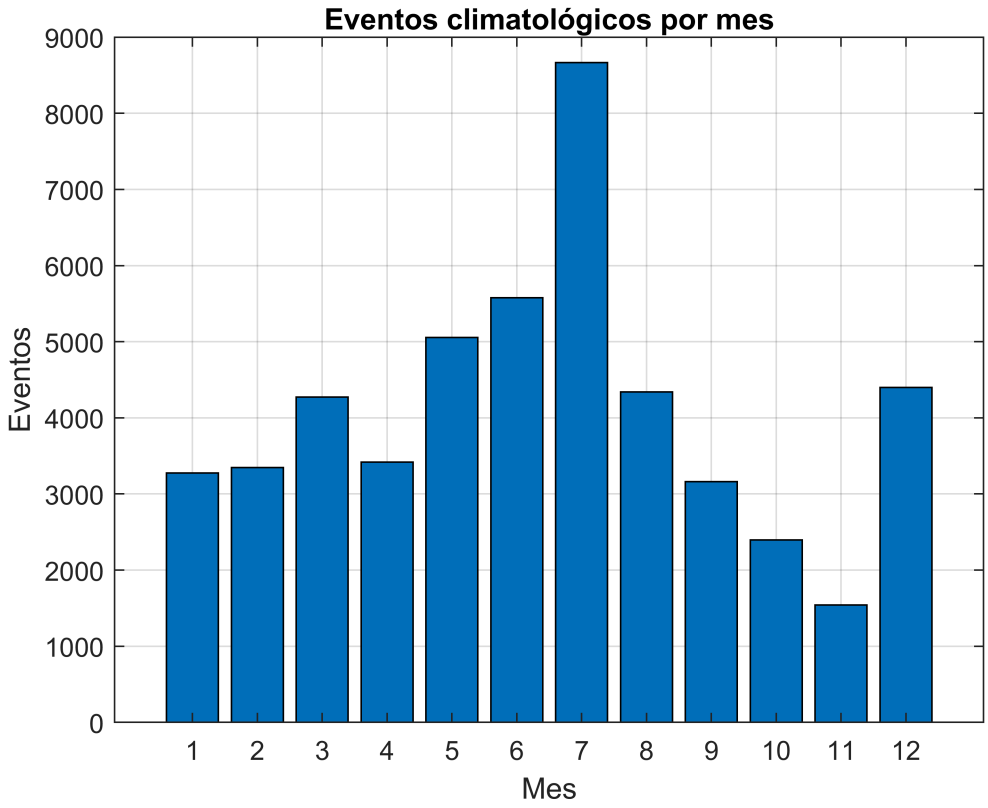
	State	Total_Damage_Cost
89	'IOWA'	45000000
90	'IOWA'	45000000
91	'IOWA'	45000000
92	'IOWA'	45000000
93	'IOWA'	45000000
94	'IOWA'	45000000
95	'IOWA'	45000000
96	'IOWA'	45000000
97	'IOWA'	45000000
98	'IOWA'	45000000
99	'IOWA'	45000000
100	'IOWA'	45000000

⋮

```
minTDC = 100000;
TornadosTDC = DataArchivo(DataArchivo.Event_Type == "Tornado" & DataArchivo.Total_Damage_Cost >
geobubble(TornadosTDC.Begin_Lat,TornadosTDC.Begin_Lon,TornadosTDC.Total_Damage_Cost, TornadosTD
title("Estados más afectados (TotalDamageCost)")
```



```
[MesMayorEventosTDC,NroEventosTDC] = TotalDamageFrequency (DataArchivo,"Cost")
```




```
MesMayorEventosTDC =
"July"
NroEventosTDC = 8664
```

INCISO 2

```
DataArchivo.Total_Damage_Injuries = DataArchivo.Injuries_Direct + DataArchivo.Injuries_Indirect
nTDI = width(DataArchivo);
TotalDamageInjuries = DataArchivo(not(isnan(DataArchivo.Total_Damage_Injuries)),nState:nTDI-nSt
sortrows(TotalDamageInjuries,"Total_Damage_Injuries","descend")
```

ans = 64503×2 table

	State	Total_Damage_Injuries
1	'MISSOURI'	116
2	'ILLINOIS'	103
3	'MISSOURI'	101
4	'MISSOURI'	98
5	'MISSOURI'	90
6	'KENTUCKY'	86
7	'ALABAMA'	76
8	'MISSOURI'	67

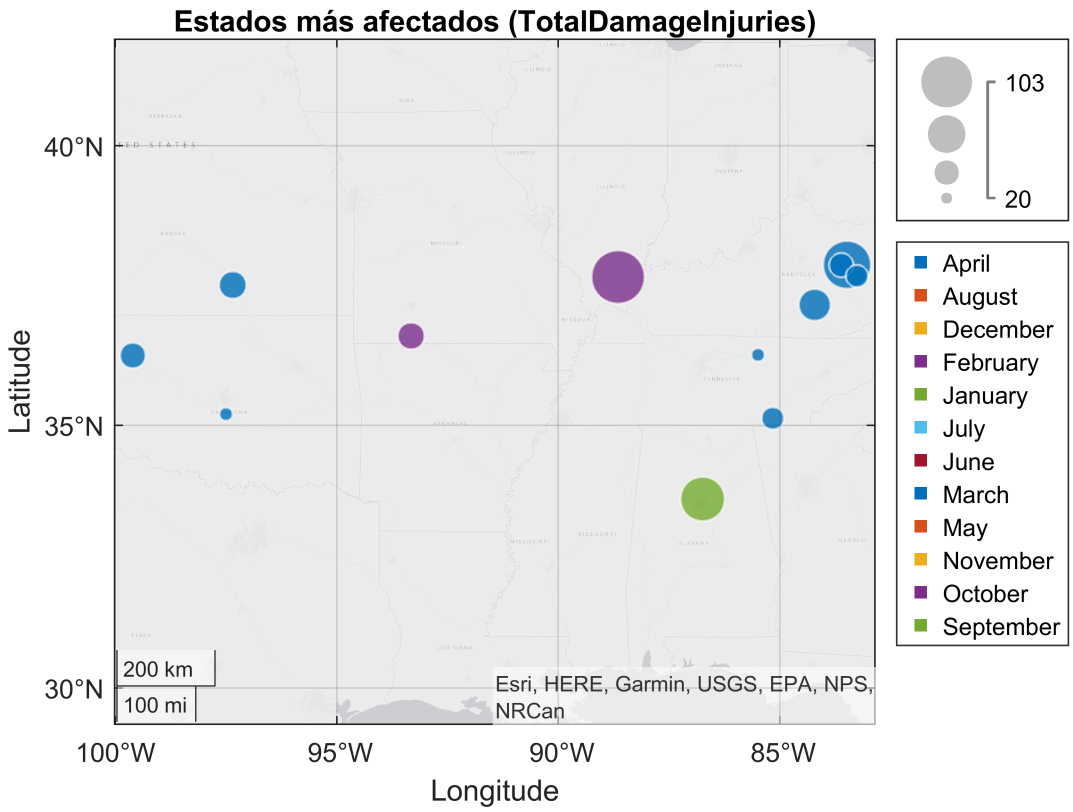
	State	Total_Damage_Injuries
9	'MISSOURI'	58
10	'TEXAS'	54
11	'FLORIDA'	52
12	'NEBRASKA'	46
13	'KENTUCKY'	46
14	'MISSOURI'	45
15	'MISSOURI'	43
16	'MISSOURI'	43
17	'MISSOURI'	43
18	'MISSOURI'	43
19	'MISSOURI'	41
20	'NORTH C...	40
21	'KANSAS'	38
22	'MISSOURI'	37
23	'OKLAHOMA'	36
24	'OKLAHOMA'	35
25	'MISSOURI'	35
26	'MONTANA'	33
27	'KENTUCKY'	33
28	'SOUTH C...	30
29	'TENNESSEE'	30
30	'KENTUCKY'	30
31	'FLORIDA'	29
32	'WISCONSIN'	27
33	'WISCONSIN'	26
34	'ILLINOIS'	25
35	'MICHIGAN'	25
36	'NEW YORK'	23
37	'FLORIDA'	22
38	'OKLAHOMA'	20
39	'PENNSYL...	20
40	'TENNESSEE'	20
41	'MICHIGAN'	20
42	'OKLAHOMA'	20

	State	Total_Damage_Injuries
43	'MISSOURI'	20
44	'TEXAS'	18
45	'PENNSYL...	17
46	'OKLAHOMA'	17
47	'OHIO'	16
48	'GEORGIA'	15
49	'MICHIGAN'	15
50	'PENNSYL...	15
51	'IOWA'	14
52	'MICHIGAN'	14
53	'VIRGINIA'	13
54	'KANSAS'	13
55	'MISSOURI'	13
56	'TEXAS'	13
57	'ILLINOIS'	13
58	'WASHINGTON'	12
59	'KENTUCKY'	12
60	'CALIFORNIA'	11
61	'CONNECT...	11
62	'OKLAHOMA'	10
63	'TEXAS'	10
64	'NEW JERSEY'	10
65	'NEW YORK'	10
66	'NORTH C...	10
67	'MISSOURI'	10
68	'SOUTH D...	10
69	'IOWA'	10
70	'IOWA'	9
71	'TENNESSEE'	9
72	'ARIZONA'	9
73	'DELAWARE'	9
74	'PENNSYL...	9
75	'KENTUCKY'	9
76	'ALABAMA'	9

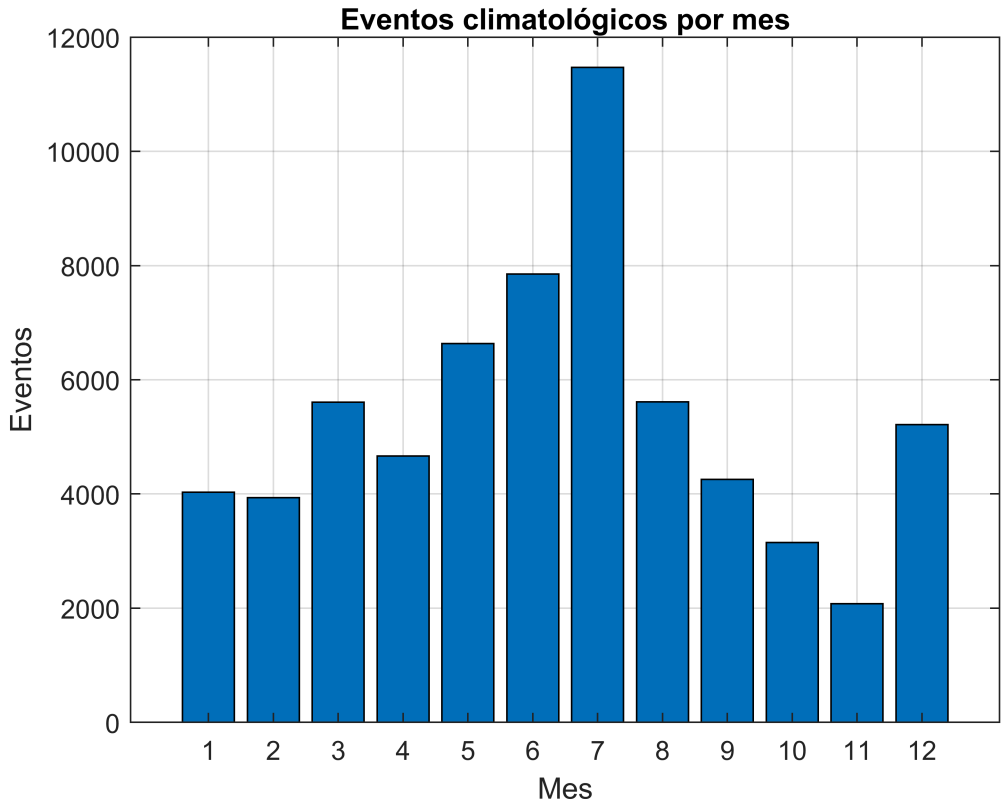
	State	Total_Damage_Injuries
77	'INDIANA'	8
78	'TEXAS'	8
79	'ARIZONA'	8
80	'MISSISS...	8
81	'NORTH C...	8
82	'KENTUCKY'	8
83	'NEVADA'	8
84	'MISSOURI'	8
85	'PENNSYL...	8
86	'GEORGIA'	8
87	'CALIFORNIA'	8
88	'MICHIGAN'	8
89	'MICHIGAN'	8
90	'ALABAMA'	8
91	'KANSAS'	7
92	'MISSISS...	7
93	'TEXAS'	7
94	'COLORADO'	7
95	'TEXAS'	7
96	'NEW YORK'	7
97	'NEW YORK'	7
98	'TENNESSEE'	7
99	'TENNESSEE'	7
100	'VIRGINIA'	7

⋮

```
minTDI = 20;
TornadosTDI = DataArchivo(DataArchivo.Event_Type == "Tornado" & DataArchivo.Total_Damage_Injuri
geobubble(TornadosTDI.Begin_Lat,TornadosTDI.Begin_Lon,TornadosTDI.Total_Damage_Injuries, Tornad
title("Estados más afectados (TotalDamageInjuries)")
```




```
[MesMayorEventosTDI,NroEventosTDI] = TotalDamageFrequency(DataArchivo,"Injury")
```




```
MesMayorEventosTDI =
"July"
```

```
NroEventosTDI = 11471
```

```
function [MesMayorEventos,NroEventos] = TotalDamageFrequency (DataArchivo,Type)
    Months = ["January", "February", "March", "April", "May", "June", "July",...
    "August", "September", "October", "November", "December"];
    if Type == "Cost"
        for i = 1:length(Months)
             FreqMonth(i,1) = sum(DataArchivo.Month == Months(i) & not(isnan(DataArchivo.Total_
        end
    elseif Type == "Injury"
        for i = 1:length(Months)
             FreqMonth(i,1) = sum(DataArchivo.Month == Months(i) & not(isnan(DataArchivo.Total_
        end
    end
    FrecuenciaEventoPorMes = table(Months',FreqMonth,'VariableNames',{'Mes', 'Frecuencia'});
    bar([1:length(Months)]',FrecuenciaEventoPorMes.Frecuencia)
    title('Eventos climatológicos por mes')
    xlabel('Mes')
    ylabel('Eventos')
    grid on
    [NroEventos, iMes] = max(FrecuenciaEventoPorMes.Frecuencia);
    MesMayorEventos = Months(iMes);
    NroEventos;
end
```

```
close all
clearvars
clear all
clc
CodigoUNI = '20190521A';
nCUNI = length(CodigoUNI);
Suma2DigitosCUNI = sum(str2num(CodigoUNI(nCUNI-2))+str2num(CodigoUNI(nCUNI-1)));
Months = ["Jan", "Feb", "Mar", "Apr", "May", "Jun", "Jul",...
    "Aug", "Sep", "Oct", "Nov", "Dec"];
Archivo = "flights" + Months(rem(Suma2DigitosCUNI,length(Months))) + ".csv";
ArchivoTabla = readtable(Archivo);
DataArchivo = importFlightsData(Archivo);
DataVN = string(DataArchivo.Properties.VariableNames);
```

INCISO 1

```
for i = 1:length(DataVN)
    if DataVN(i) == "ORIGIN"
        iODD = i;
    elseif DataVN(i) == "DESTINATION"
        iODD = [iODD i];
    elseif DataVN(i) == "DISTANCE"
        iODD = [iODD i];
    end
end
ODD = DataArchivo(not(isnan(DataArchivo.DISTANCE)), iODD);
sortrows(ODD,"DISTANCE","descend")
```

ans = 504312×3 table

	ORIGIN	DESTINATION	DISTANCE
1	JFK	HNL	4983
2	HNL	JFK	4983
3	JFK	HNL	4983
4	HNL	JFK	4983
5	JFK	HNL	4983
6	HNL	JFK	4983
7	JFK	HNL	4983
8	HNL	JFK	4983
9	JFK	HNL	4983
10	HNL	JFK	4983
11	JFK	HNL	4983
12	HNL	JFK	4983
13	JFK	HNL	4983
14	HNL	JFK	4983
15	JFK	HNL	4983

	ORIGIN	DESTINATION	DISTANCE
16	HNL	JFK	4983
17	JFK	HNL	4983
18	HNL	JFK	4983
19	JFK	HNL	4983
20	HNL	JFK	4983
21	JFK	HNL	4983
22	HNL	JFK	4983
23	JFK	HNL	4983
24	HNL	JFK	4983
25	JFK	HNL	4983
26	HNL	JFK	4983
27	JFK	HNL	4983
28	HNL	JFK	4983
29	JFK	HNL	4983
30	HNL	JFK	4983
31	JFK	HNL	4983
32	HNL	JFK	4983
33	JFK	HNL	4983
34	HNL	JFK	4983
35	JFK	HNL	4983
36	HNL	JFK	4983
37	JFK	HNL	4983
38	HNL	JFK	4983
39	JFK	HNL	4983
40	HNL	JFK	4983
41	JFK	HNL	4983
42	HNL	JFK	4983
43	JFK	HNL	4983
44	EWR	HNL	4962
45	HNL	EWR	4962
46	EWR	HNL	4962
47	HNL	EWR	4962
48	EWR	HNL	4962
49	HNL	EWR	4962

	ORIGIN	DESTINATION	DISTANCE
50	EWR	HNL	4962
51	HNL	EWR	4962
52	EWR	HNL	4962
53	HNL	EWR	4962
54	EWR	HNL	4962
55	HNL	EWR	4962
56	EWR	HNL	4962
57	HNL	EWR	4962
58	EWR	HNL	4962
59	HNL	EWR	4962
60	EWR	HNL	4962
61	HNL	EWR	4962
62	EWR	HNL	4962
63	HNL	EWR	4962
64	EWR	HNL	4962
65	HNL	EWR	4962
66	EWR	HNL	4962
67	HNL	EWR	4962
68	EWR	HNL	4962
69	HNL	EWR	4962
70	EWR	HNL	4962
71	HNL	EWR	4962
72	EWR	HNL	4962
73	HNL	EWR	4962
74	EWR	HNL	4962
75	HNL	EWR	4962
76	EWR	HNL	4962
77	HNL	EWR	4962
78	EWR	HNL	4962
79	HNL	EWR	4962
80	EWR	HNL	4962
81	HNL	EWR	4962
82	EWR	HNL	4962
83	HNL	EWR	4962

	ORIGIN	DESTINATION	DISTANCE
84	EWR	HNL	4962
85	HNL	EWR	4962
86	EWR	HNL	4962
87	HNL	EWR	4962
88	EWR	HNL	4962
89	HNL	EWR	4962
90	EWR	HNL	4962
91	HNL	EWR	4962
92	EWR	HNL	4962
93	HNL	EWR	4962
94	EWR	HNL	4962
95	HNL	EWR	4962
96	EWR	HNL	4962
97	HNL	EWR	4962
98	EWR	HNL	4962
99	HNL	EWR	4962
100	EWR	HNL	4962

⋮

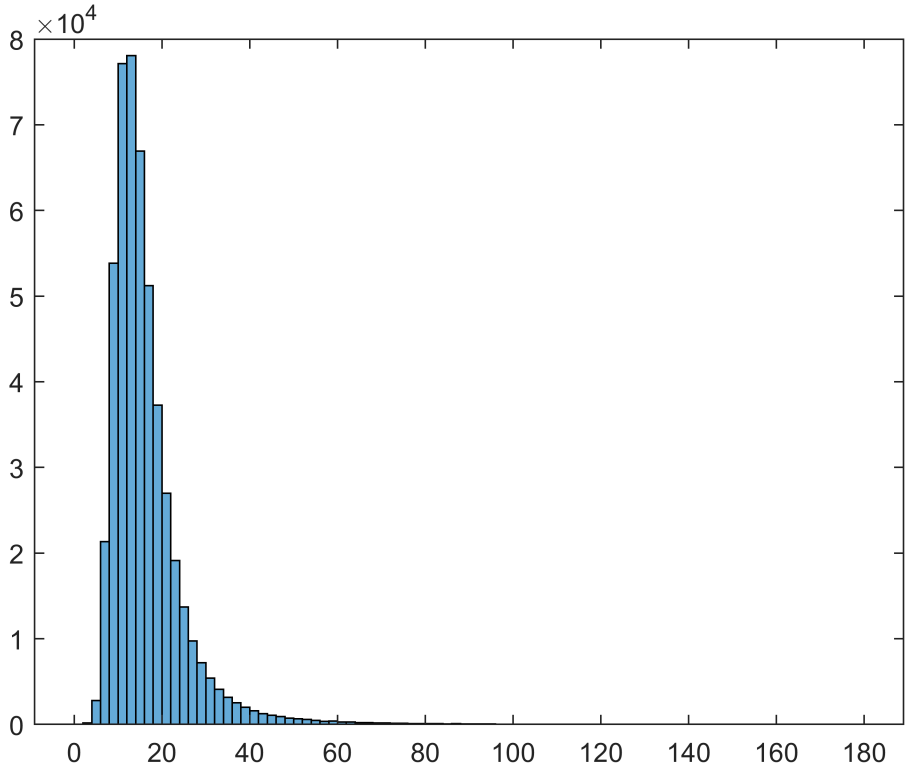
INCISO 2

```
sum(DataArchivo.CANCELLED)
```

```
ans = 11002
```

INCISO 3

```
histogram(DataArchivo.TAXI_OUT,"BinWidth",2)
```




```
sk = skewness(DataArchivo.TAXI_OUT)
```

```
sk = 3.5028
```

INCISO 4

```
for i = 1:length(DataVN)
    if DataVN(i) == "CANCELLATION_CODE"
        iCC = i;
        break;
    end
end
CC = ["A", "B", "C", "D"];
for i = 1:length(CC)
    [CCi, ~] = size(DataArchivo(DataArchivo.CANCELLATION_CODE == CC(i),iCC));
    CCfreq(i,1) = CCi;
end
table(CC',CCfreq,'VariableNames',{'CANCELLATION_CODE','Frequency'})
```

ans = 4×2 table

	CANCELLATION_CODE	Frequency
1	"A"	2494
2	"B"	6864
3	"C"	1639
4	"D"	5

INCISO 5

```
TOCorr = corr(DataArchivo.TAXI_OUT, DataArchivo.ARRIVAL_DELAY,"rows","complete")
```

```
TOCorr = 0.2478
```

```
SETCorr= corr(DataArchivo.SCHEDULED_ELAPSED_TIME, DataArchivo.ARRIVAL_DELAY,"rows","complete")
```

```
SETCorr = -0.0179
```

```
DDCorr = corr(DataArchivo.DEPARTURE_DELAY, DataArchivo.ARRIVAL_DELAY,"rows","complete")
```

```
DDCorr = 0.9424
```

```
TICorr = corr(DataArchivo.TAXI_IN, DataArchivo.ARRIVAL_DELAY,"rows","complete")
```

```
TICorr = 0.1086
```

INCISO 6

```
AirPorts = readtable("airports.csv");
APnames = AirPorts.AIRPORT;
for i = 1:length(APnames)
        FinSemana1(i,1) = length(DataArchivo.DESTINATION(rem(day(DataArchivo.ACTUAL_DEPARTURE_T
            & month(DataArchivo.ACTUAL_DEPARTURE_TIME) == 3 ...
            & DataArchivo.DESTINATION == string(APnames(i))));
        FinSemana2(i,1) = length(DataArchivo.DESTINATION(rem(day(DataArchivo.ACTUAL_DEPARTURE_T
            & month(DataArchivo.ACTUAL_DEPARTURE_TIME) == 3 ...
            & DataArchivo.DESTINATION == string(APnames(i))));
        FinSemana(i,1) = FinSemana1(i,1) + FinSemana2(i,1);
        Semana(i,1) = length(DataArchivo.DESTINATION(rem(day(DataArchivo.ACTUAL_DEPARTURE_TIME)
            & rem(day(DataArchivo.ACTUAL_DEPARTURE_TIME)-1,7) ~= 0 ...
            & month(DataArchivo.ACTUAL_DEPARTURE_TIME) == 3 ...
            & DataArchivo.DESTINATION == string(APnames(i))));
end
[FSMaxF, iAPFS] = max(FinSemana);
FSMaxF
```

```
FSMaxF = 8883
```

```
APnames(iAPFS)
```

```
ans = 1×1 cell array
    {'ATL'}
```

```
[SMaxF, iAPS] = max(Semana);
SMaxF
```

```
SMaxF = 23607
```

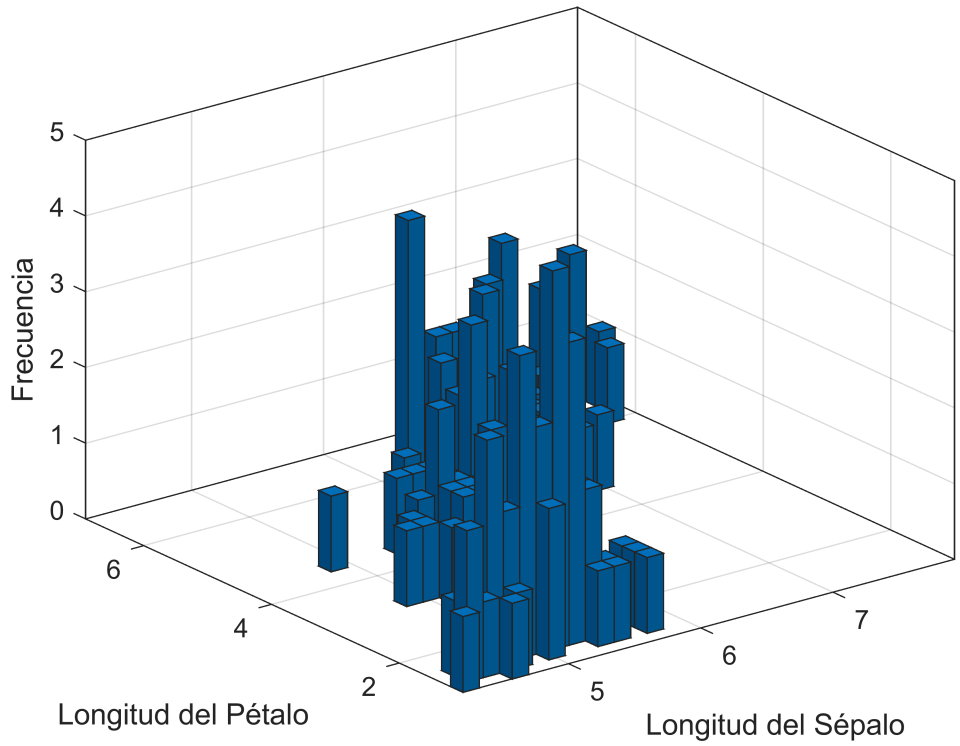
```
APnames(iAPS)
```

```
ans = 1×1 cell array
    {'ATL'}
```

```
close all
clearvars
clear all
clc
load fisheriris.mat
LongSepalo = meas(:,1);
AnchSepalo = meas(:,2);
LongPetalo = meas(:,3);
AnchPetalo = meas(:,4);
```

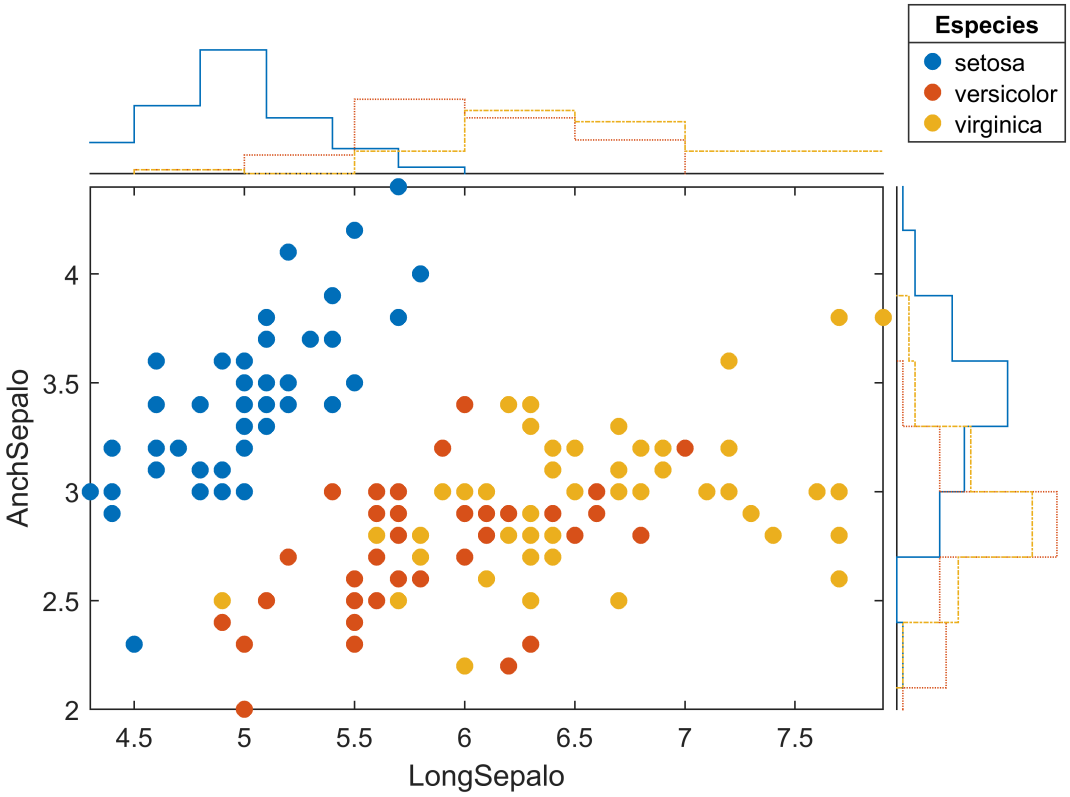
INCISO 1

```
bins = 30;
histogram2(LongSepalo,LongPetalo,bins)
xlabel('Longitud del Sépalo')
ylabel('Longitud del Pétalo')
zlabel('Frecuencia')
```

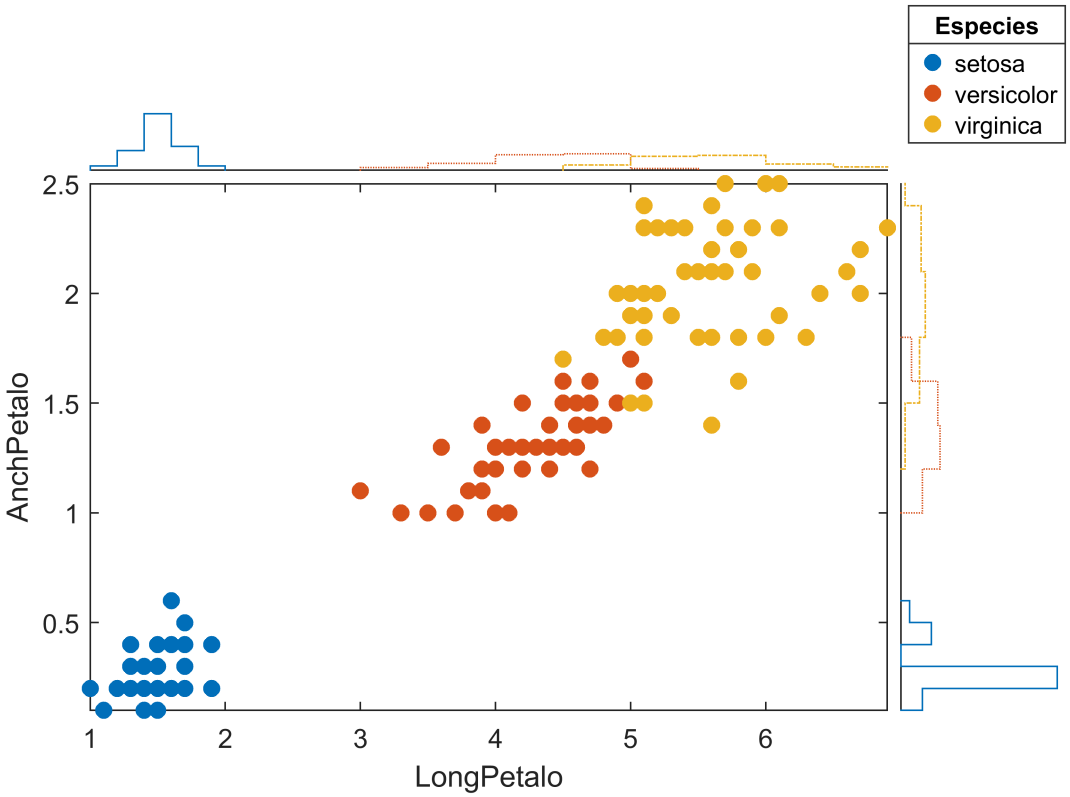


INCISO 2

```
tbl = table(LongSepalo,AnchSepalo,LongPetalo,AnchPetalo,species,'VariableNames',{'LongSepalo','
scatterhistogram(tbl,'LongSepalo','AnchSepalo','GroupVariable','Especies')
```

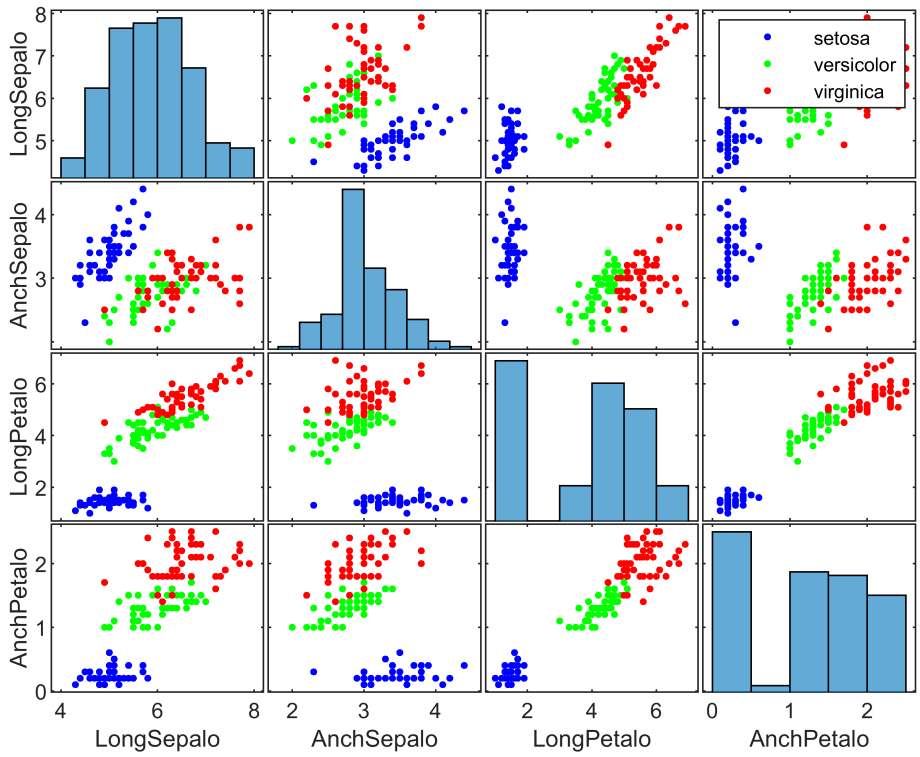



```
scatterhistogram(tbl,'LongPetalo','AnchPetalo','GroupVariable','Especies')
```



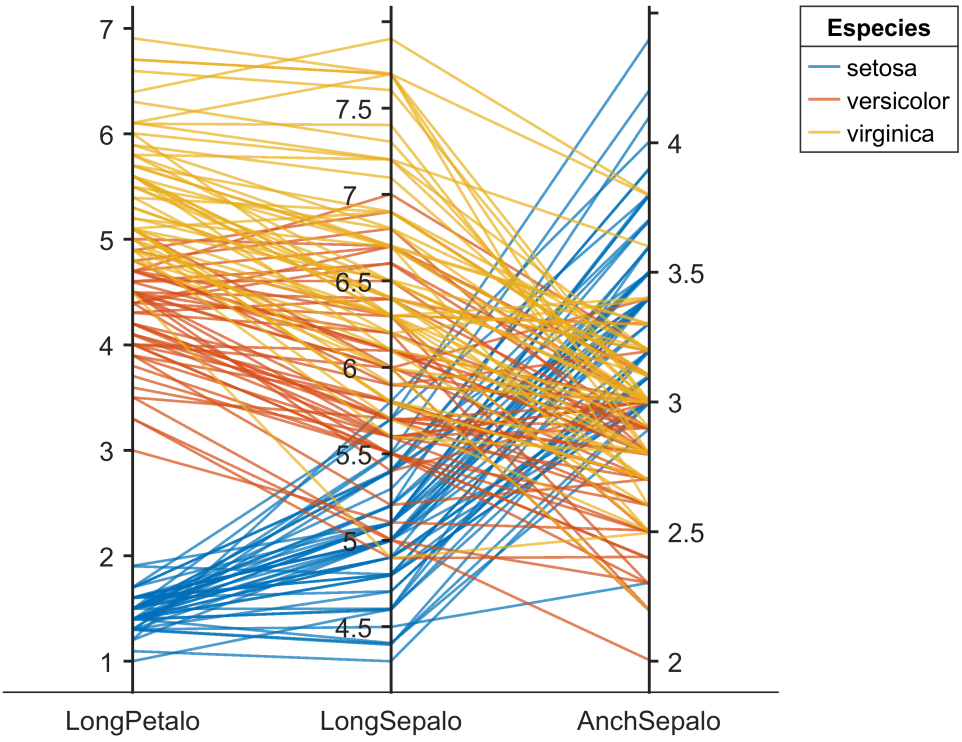
INCISO 3

```
contvars = ["LongSepalo", "AnchSepalo", "LongPetalo", "AnchPetalo"];
X = tbl{:,contvars};
gplotmatrix(X,[],tbl.Especies,[],[],[],[],'hist',contvars)
```



INCISO 4

```
parallelplot(tbl,"CoordinateVariables",contvars(randperm(length(contvars)-1)),...
'GroupVariable','Especies')
```


Especies
setosa
versicolor
virginica
LongPetalo
LongSepalo
AnchSepalo
7
6
5
4
3
2
1
7.5
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5
2