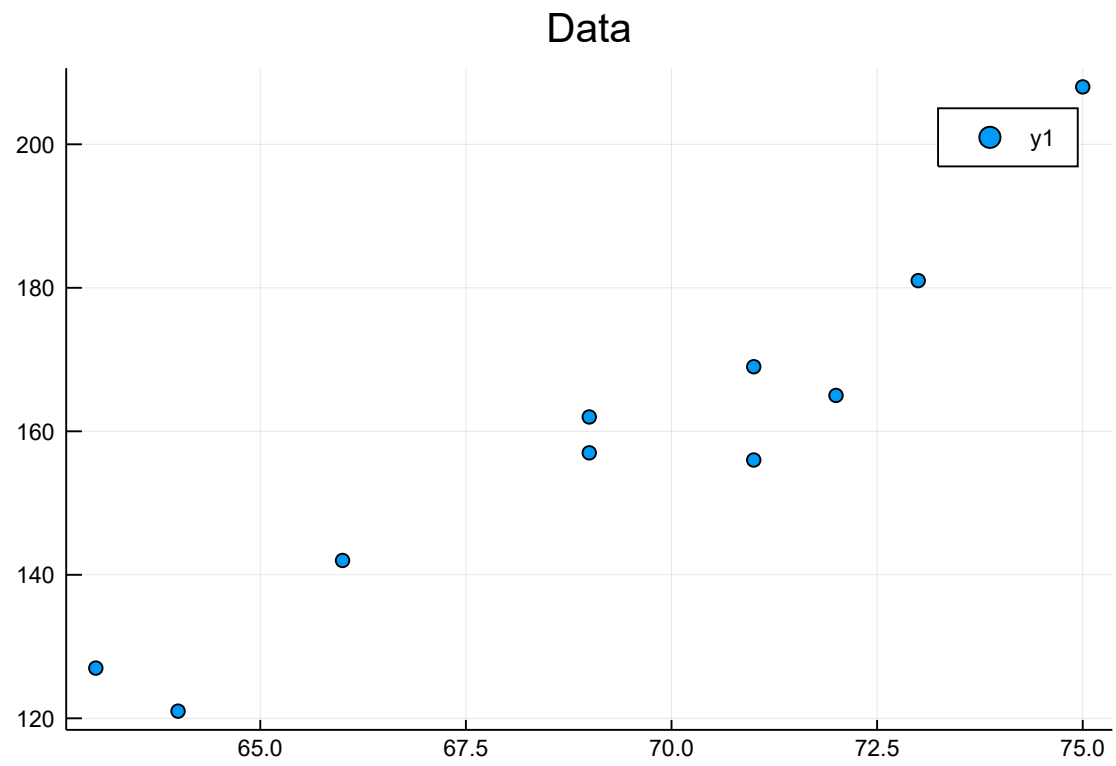
In [2]:

```
using Plots
data = readdlm("data.txt")
x = data[:,1]
y = data[:,2]
plot(x,y,seriestype=:scatter,title="Data")
```

Out[2]:



In [2]:

```
using Knet
predict(w,x) = w[1]*x .+ w[2]
J(w,x,y) = mean(abs2,y-predict(w,x))
dJ = grad(J)

w = Any[ 0.1*randn(1,1), 0.1*randn(1,1) ]
data = readdlm("data.txt")
x = data[:,1:1]'
y = data[:,2:2]'

for t=1:5
    println(J(w,x,y))
    w = w - 0.0001 * dJ(w,x,y)
end
```

```
26022.7326636941
298.0311734215405
263.68297118940274
263.6368755077257
263.63658046208786
```

In [3]:

```
include("GetHousingData.jl")
(xtrn, ytrn, xtst, ytst) = GetHousingData()
```

Out[3]:

```
([-0.419367 -0.416927 … -0.407361 -0.41459; 0.284548 -0.48724 … -0.48724 -
0.48724; … ; 0.440616 0.440616 … 0.402826 0.440616; -1.0745 -0.491953 … -
0.864446 -0.668397], [24.0 21.6 … 22.0 11.9], [-0.419367 -0.416927 … -0.40
7361 -0.41459; 0.284548 -0.48724 … -0.48724 -0.48724; … ; 0.440616 0.44061
6 … 0.402826 0.440616; -1.0745 -0.491953 … -0.864446 -0.668397], [24.0 21.
6 … 22.0 11.9])
```

In [4]:

```
using Knet
predict(w,x) = w[1]*x .+ w[2]
J(w,x,y) = mean(abs2,y-predict(w,x))
dJ = grad(J)

n,m = size(xtrn)
w = Any[ 0.1*randn(1,n), 0.1*randn(1,1) ]
for t=1:25
    println(J(w,xtrn,ytrn))
    w = w - 0.1 * dJ(w,xtrn,ytrn)
end
```

```
595.6686234863056
369.8644332396938
243.72126792564217
164.21425339885005
113.52942641507053
81.15134572527296
60.438300922767866
47.167011425483786
38.64782911928869
33.166070274999825
29.627642384667702
27.3338795458402
25.838294909041256
24.855350841006878
24.20230428891254
23.762106515760063
23.459718139723293
23.24697916234889
23.09293848298893
22.977669668738262
22.888314191491922
22.8165485814153
22.756962251424106
22.70601800277925
22.661385512056277
```

In [1]:

```
using Plots
x=-5:0.1:5
ySigmo = 1 ./ (1+exp.(-x))
yTanj = (2 ./ (1+exp.(-2x)) - 1)
yRelu = max.(0,x)
plot(x,[ySigmo yTanj],seriestype=:scatter,title="Data")
```

Out[1]: