linear regression

```
clc;
close all;
clear all;
x=-1:0.1:1;
[r,c]=size(x);
t0=100*x+7*randn(1,c);
scatter(x,t0);
hold on;
w=randn(1);
b=randn(1);
e1=zeros(1,c);
e=zeros(1,c);
eta=0.1;
mse=zeros(2,c);% store mse and iteration number
iter=0;
while iter<100

    for i=1:c % goes through each example
        y0=x(i)*w+b;
        e1(i)=t0(i)-y0;
        e(i)=e1(i)^2;
        delta_b=eta*e1(i);
        delta_w=eta*e1(i)*x(i);
        b=b+delta_b;
        w=w+delta_w;
    end
iter=iter+1;
mse(iter:iter,1:1)=iter;
mse(iter:iter,2:2)=sum(e)/c;
end
t1=w*x+b;
 plot(x,t1);
 xlabel('x');
 ylabel('t1');
 title('plot');
```

OUTPUT:

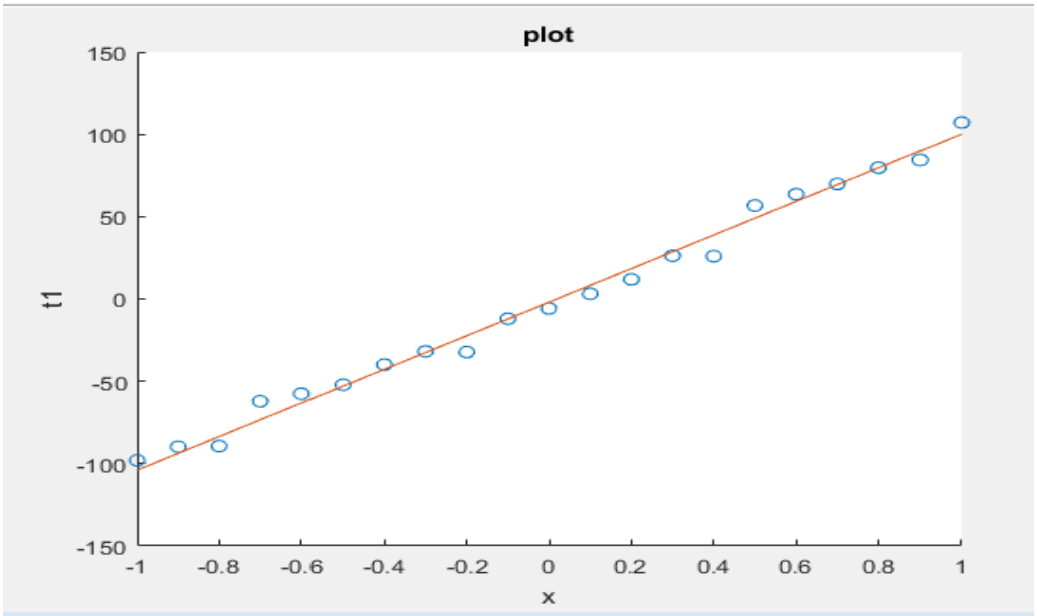

Fig:Output of linear regression