function [J, grad] = linearRegCostFunction(X, y, theta, lambda)

%LINEARREGCOSTFUNCTION Compute cost and gradient for regularized linear

%regression with multiple variables

% [J, grad] = LINEARREGCOSTFUNCTION(X, y, theta, lambda) computes the

% cost of using theta as the parameter for linear regression to fit the

% data points in X and y. Returns the cost in J and the gradient in grad

% Initialize some useful values

m = length(y); % number of training examples

% You need to return the following variables correctly

J = 0;

grad = zeros(size(theta));

% ====================== YOUR CODE HERE ======================

% Instructions: Compute the cost and gradient of regularized linear

% regression for a particular choice of theta.

%

% You should set J to the cost and grad to the gradient.

%

h=X\*theta;

J=(1/(2\*m))\*(sum((h-y).^2)+lambda\*sum((theta(2:end)).^2));

% =========================================================================

grad=(1/m)\* X'\*(h-y);

temp=theta;

temp(1)=0;

grad=grad+(lambda/m).\*temp;

end