	Name: Dhanraj Bhosale
N c a :	1750P: 1225506620 (dbhosal1)
in 281 both	Iment - Linear Regression model parameter Learning- Gradient Derivation
Q.1	Cost function. On (1) S (8) printited of word
	1 5 1 1 m (c) 1 c 2 2 2 6
	$J(\theta_0,\theta_i) = \frac{m}{2m} \left( h_0(\alpha^{(i)}) - g(i) \right)^2$
	ho(x) = OTx = O + Olx = ( m-[training set
	Gradient of J(0),
	$\frac{1}{2} \frac{1}{\sqrt{2}} \left( \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} \frac{1}{\sqrt{2}} \right) = \frac{1}{\sqrt{2}} \frac{1}{\sqrt{2}} \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}} \frac{1}{\sqrt{2}} \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}} \frac{1}{\sqrt{2}} \frac{1}{\sqrt{2}} = \frac{1}{\sqrt$
	$\frac{\partial}{\partial \theta_{j}} J(\theta_{0}, \theta_{1}) = \frac{1}{2m} \sum_{i=1}^{n} \left(\theta_{0} + \theta_{1} x^{(i)} - y^{(i)}\right)^{2}$
1	
	: let $\theta_0 + \theta_1 \times (i) - y^{(i)} = f(\theta_0, \theta_1)^{(i)} - (1)$
4	$= 3 \left  \frac{m}{1 \left( (n \circ n)^{(i)} \right)^2} \right ^2$
	$= \frac{\partial}{\partial \theta_0} \frac{1}{2m} \sum_{i=1}^{\infty} \left( f(\theta_0, \theta_i)^{(i)} \right)^{\frac{2}{m}}$
	$= -1 - \frac{m}{m} = \frac{1}{2} + \frac{m}{m} = \frac{1}{2}$
	$= \frac{1}{2m} \sum_{i=1}^{m} f(\theta_0, \theta_i) \cdot \frac{\partial}{\partial \theta_i} f(\theta_0, \theta_i) - \frac{\partial}{\partial \theta_i} ruk$
f(o	$(0,0) = \frac{1}{\sqrt{2}} \left( \frac{1}{\sqrt{2}} \left( \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} \left( \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} \right) - \frac{1}{\sqrt{2}} \right) \right) - \frac{1}{\sqrt{2}} \left( \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} \right) - \frac{1}{\sqrt{2}} \left( \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} \right) - \frac{1}{\sqrt{2}} \left( \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} \right) - \frac{1}{\sqrt{2}} \left( \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} \right) - \frac{1}{\sqrt{2}} \left( \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} \right) - \frac{1}{\sqrt{2}} \left( \frac{1}{\sqrt{2}} + 1$
	$\frac{\partial}{\partial \theta_{i}} f(\theta_{0}, \theta_{i}) = \frac{\partial}{\partial \theta_{i}} (\theta_{0} + \theta_{1}) \chi^{(i)} - y^{(i)}$
	30;
	tor i=0
	$\frac{\partial}{\partial \theta} \left\{ (\theta_0, \theta_1) = \frac{\partial}{\partial \theta_0} (\theta_0 + \theta_1 \times i) - y^{(i)} \right\} = \frac{1}{3}$
	for jet
	$\frac{\partial}{\partial \theta_{i}} f(\theta_{0}, \theta_{i}) = \frac{\partial}{\partial \theta_{i}} (\theta_{0} + \theta_{i} \chi^{(i)} - y^{(i)}) = \chi_{i}$
	30,

Noine Property Bhount Asop: 17:590600 (dblosull) Pssingment - Linear Regression model permitter framery Now Substituting B&G in O. 3 00 ( D0101) = 1 = (ho(xi)-yi),  $\frac{\partial}{\partial \theta_i} J(\theta_0, \theta_i) = \lim_{i \to i} \left( h_0(x_i) - y_i \right) \chi_i.$ 1(000) 2m [ (0010) x (000) [ = 0 ((e0,0)) = 0 ((e0,0)) = 2 x 1 (00,01) 00 f (00,0) (00,00+00 # 4 = (0,00)) ((0p-(0,0+0)) 6 ((0,0)) 6 .. - (a,e,e)= 2 (e,+e,xi)- yi) -(10) - (12, 3 E, 5) ( = (19,0)).