

# Writing my own class...

```
class My_BatchGradientDescent:
```

```
    def __init__(self, learning_rate, epochs):    # Constructor
```

```
        self.intercept_ = None
```

```
        self.coef_ = None
```

```
        self.learning_rate = learning_rate
```

```
        self.epochs = epochs
```

```
    def fit(self, X_train, Y_train):
```

```
        # Initializing to coef and intercept.
```

```
        self.intercept_ = 0
```

```
        self.coef_ = np.ones(X_train[1])
```

```
        for a in range(self.epochs):
```

```
            # Updating the values of coef and intercept. → self.intercept_
```

```
            Y_predicted = np.dot(X_train, self.coef_) # Vectorization
```

```
            intercept_der = -2 * np.mean(Y_train - Y_predicted)
```

```
            self.intercept_ = (self.intercept_ - (self.learning_rate * intercept_der))
```

```
            coef_der = -2 * np.dot((Y_train - Y_predicted), X_train) / X_train.shape[0]
```

```
            self.coef_ = (self.coef_ - (self.learning_rate * coef_der))
```

```
    def predict(X_test, self):
```

```
        return np.dot(X_test, self.coef_) + self.intercept_
```

```
        # As per the Formula  $[mx + b]$ 
```