SESSION PLAN

Session Name	Make your first prediction with Linear Regression

Learning Outcomes

- Validate linear regression assumptions and decide if it can be applied on data
- Build a linear regression model using sklearn
- Understand the different evaluation metrics for your model

Prerequisites for the Student

- Make your first prediction with Linear Regression

Student Activities

- Ask learners what they have learned from the concept?
- Introductory video on linear regression https://www.youtube.com/watch?v=HoqXask9cN8
- A good medium blog on linear regression in real life https://towardsdatascience.com/linear-regression-in-real-life-4a78d7159f16
- A small group activity on McDonald's menu items.

The table below shows the fat content in grams and the calories from fat for several McDonald's menu items.

McDonald's Menu Item	Fat	Calories from Fat
Bacon & Cheese Quarter Pounder	29	260
Big Mac	27	240
Premium Crispy Chicken Sandwich	22	200
Mac Snack Wrap	19	170
Crispy Chicken Bacon Clubhouse	38	340
Grilled Chicken Bacon Clubhouse	25	230
Crispy Chicken Club	33	300
Chicken McNuggets (10 piece)	30	270
Double Quarter Pounder with Cheese	43	380
Chipotle BBQ Snack Wrap (crispy)	15	130
Cheeseburger	11	100
Hamburger	8	70
McDouble	17	150

Source: McDonald's Full Menu Explorer, <http://www.mcdonalds.com/us/en/full_menu_explorer.html>, August 5, 2014

  - On the below link provided, plot the data so that the fat content is on the x-axis and the calories are on the y-axis. **https://www.geogebra.org/classic?lang=en**
  - Label the graph.
  - Find the line of best fit.
  - Describe the relationship between fat and calories
  - Explain the correlation between the variables. Is it positive or negative?
  - What would have happened if the variables were reversed?
  - What would be the predicted calorie count for items containing 42 grams of fat and 58 grams of fat?
- Overview of Make your first prediction with Linear Regression
  - Ordinary Least Square
  - Evaluation Metrics
- Practice problem on Linear Regression Model building
  - Refer the GitHub repo for problems
- Quiz on Make your first prediction with Linear Regression .
- Code Along.
- Questions and Discussion on doubts - AMA

Next Session

- Concept - Regularization
- Key topics to be highlighted - highlight where they would need to spend more time and importance w.r.t Data

Science.

- Types of Gradient descent
- Complexity of Models
- Regularization
- Hyperparameter tuning