- ***Dynamic Leadership***

  Personalpha asked PersonBeta to learn about Dynamics Leadership and Improvisation
  and generate highlights.

- Content Credit:
  Lakshmi Balachandra. *15.969 Dynamic Leadership: Using Improvisation in Business.* Fall 2004. Massachusetts Institute of Technology: MIT OpenCourseWare, https://ocw.mit.edu. License: Creative Commons BY-NC-SA.

- Leadership starts with Integrity ,integrity that is not only limited to classrooms, Offices . It have focus outside the classroom while performing routine and introduced as day to day habit of life. Leadership is
  the confidence in abilities.

- *Leadership is understanding the situation rather than reading the situation.*
  Often Understanding the initial steps, calculate how people will react, changing small elements and seeing Big Picture is the best practice.

- Top 10 Rules mentioned for a successful improv comics[Reading the situation]. Dynamic Leadership
  can be compared and contrasted.
  Always Agree, Never Never Deny.

Don't ask questions

Listen

Add information , never filler

Eye Contact.

Use Space works

Avoid Arguments

Don’t be static “ talking head”

Let go ! Try new things.

Remaining in the right state all of the time.

- *While Leadership Model (Mentioned in content)is :*

  Inventing

  Visioning

  Relating

  Sense-making

  Change Signature(Self Awareness)

- Personalpha : Describe Improvisation?

  PersonBeta: Understand the situation, focusing on entire process including smaller sections and smaller elements. Considering Outputs of every steps. Seeing Big Picture

- *Improvisation moments define leadership.*

  Know your audience and taking questions from them

  Say for a salesperson profile ,leadership begins with a effective salesmen:

  Having confidence,

  knowing the client’s demand,

  Adding information

  And taking notes.

then being passionate, authenticate and staying true to image.
Confidence is part of leadership

- *Success as Leader depends upon networking as well.*
  Staying in the image of Leader is important .
  Leaders Inspire Others, Absorb risk Like a Conductor, Develop Relationships rather than wrapping in oneself.

- Personalpha : Here, 5 components of Goleman Emotional Intelligence is listed,Self- Awareness, Self-Recognition, Motivation, Empathy and Social Skill.
  PersonBeta, do you think these skills are important for Leadership?
  PersonBeta: Definitely, Leadership involves top most decision for any organization, and these factors contribute to a lead in organization. Empathy to produce Team efforts, Social Skill to generate organizational relationships, Motivation to take risk at required time . Self-Awareness to be a inspire others. Self-Recognition to have confidence in abilities.

- ***"We must be the change , we see in others" : Gandhi.***

- Analytics Conversation b/w Personalpha and PersonBeta.

- Content Credit: Dimitris Bertsimas. *15.071 The Analytics Edge.* Spring 2017. Massachusetts Institute of Technology: MIT OpenCourseWare, https://ocw.mit.edu. License: Creative Commons BY-NC-SA.

- Personalpha : Explain The Framingham Heart Study?
  PersonBeta : It used regression to predict whether or not patient would develop heart diseases or not in the next ten years.

- *Personalpha : Integer Programming Problem ? Any Example you learn and a*
  method to solve it?
  PersonBeta : Suppose that there are 5 men and 3 women and we have to match in order to get maximum Compatibility. The Objective function is to have maximum Compatibility. And the constraints are each man would have only match. Similar Each would have exactly on match. Thus , based on data collected on Compatibility. A logistic regression model is considered as a possible solution.

- Personalpha : Bag of Words Approach?
  PersonBeta : Count the number of times each word occurs in model. One feature can be chosen for each word. Some words are applicable for sentences only and considered in sentences such as the ,at are not increasing the machine learning's ability and are taken away from the further process. Stemming is the process of releasing the words from their respective stem.(argu is the stem for argued and arguing). Stemming can performed in different ways , say placing stem and words in a data frame or in database. The other way is handling stem and words via a pattern or algorithm.

- Personalpha : Explain Claim data?
  PersonBeta : Data including Patients information such as previous medical history, patient previous medicines and pre-existing disorders.

- Personalpha : What does tapply function does?
  PersonBeta: tapply function take argument takes arguments, group second group by virtue of one. And apply agrument3 such as mean.

- Personalpha : Explain a simple Chronical Heart Disease Model?
  PersonBeta: Typical model stays around :Importing data,
  Randomly split the model into training and testing data.
  Logistic Regression is used on training set to predict whether the patient experienced CHD within 10 years of first examination.
  Evaluate prediction power on test data.

- Features involves Risk factors, Medical History Risk factors and Risk factors from first examination.

- Personalpha: Methods of Segmentation or seeing the Big Picture?
  PersonBeta: Clustering is the most preferred, Dendrogram is used for comparing groups having different number of clusters (in case of hierarchical clustering i.e. clustering with ordering, height indicating order and data elements are listed at the base level).

- Personalpha : Differentiate between good and bad visualization?
  PersonBeta: Bad Visualization: Unclear results, inaccurate interpretations ,ambiguous in decisions.
  Good Visualization: Clarity , accurate and overfitting or underfitting are understood thoroughly.

- Personalpha : Discuss the Google AdWords Problem you learned about?
  PersonBeta: Typical AdWords Problem :
  Objective of the problem : Maximize revenue or Profit.

Decision: The number of times ad will be displayed ,with respect to season or advertiser.

Constraints:

Average amount paid by each advertiser should be less than budget.

Total ads for the season cannot be greater than the total number of ads for the season.

- **Application of AI in Healthcare**
- Content Credit:
- Peter Szolovits, and David Sontag. *6.S897 Machine Learning for Healthcare.* Spring 2019. Massachusetts Institute of Technology: MIT OpenCourseWare, https://ocw.mit.edu. License: Creative Commons BY-NC-SA.
- Personalpha : What you learn about when Neural Network go started in Healthcare.
  PersonBeta : 1n 1990's, Scientist started applying Neural Networks but the data presented was very less so scientist was not able to obtain generalized result.
- In healthcare system, their is basically three tasks : Diagnosis, Prognosis and Therapy: Diagnosis involves Doctor's figure out the what's wrong with the patient. Prognosis: Predicting what's will happen to the patient if doctor does not take any action. Finally, Therapy is finding out the cure of the diseases.
- Healthcare requires robust algorithms and deals heavily with with semi-supervised and unsupervised learning. Initially, Healthcare Machine Learning
  algorithms applied One-shot Models but later it is recognized that the healthcare models requires continuous flow of data.
- Personalpha: Tell about Clinical Data ?
- PersonBeta : In Clinical data specially in Heart Functioning , Heart Rate vs Age Scatter Graph and Bar Plots are used often, Heat Map can be crucial and medical coding is used. Their is various types of data including demographics,
  features , patient's conditions. Healthcare system follows medical coding system for Medicines and Medical Procedures.

- Dividing Patients in Low risk and High risk category (Risk Stratification)so that cost and conditions can be improved.L1 Regularization is used to prevent overfitting in clinical data. Binary Classification, Likelihood and Held out is often used. Machine Learning algorithms are quick to apply and have high accuracy.
- Personalpha : What are Left Censoring and Right Censoring ?
  PersonBeta:
  Left Censoring: Patient's data absent prior to some time point.
  Right Censoring : Patient's data absent after some time point.
- Personalpha: Cardiac Imaging ?
  PersonBeta : Coronary Heart Disease is found to be leading cause of Death Worldwide. Image Classification and Segmentation is often used. Transformer architecture are often used. Application of machine learning includes Automatic ECG interpretation in emergency situations, allowing much greater volume of data too be interpreted.
- Personalpha: DICOM Format Explain?
  PersonBeta: Most images /graphics file for healthcare are stored in compressed
  DICOM format which includes header and characteristic of the images.
- Personalpha : Words on Pathology?
  PersonBeta : Artificial Neural Networks are used for Pathology. Cancer cell have checkpoints. These checkpoints or Abnormality are the detected via Models. Model often involves steps Initialization, Optimization and Merging with other models.
- Personalpha : Some of treatment in Critical Conditions requires a series of actions
  or sequence or actions to enter. And actions are chosen from the series based
  upon the best possible reward.
  PersonBeta: Certain algorithms required to be applied?
- Personalpha : While creating a medicine for a particular ailment or condition , their
  are a lot of number of dimension involves.
  PersonBeta : So, we need to deal with deal with a lot of dimensions during the analysis. We need to check /normalize the dimensions. Bayesian methods
  can be utilized for clustering of dimensions.
- Personalpha Carry out some lessons you learned about automating Workflow in Healthcare System.
  PersonBeta

The Meta data : Including symptoms , characteristics and conditions can be processed and utilize to generate a guideline, flowchart or decision tree for ailments ,common conditions. Bayesian models can answer ailment with
specific conditions and possible outcomes.

- PersonBeta : Explain the flow of G- Method?
  Personalpha: Dynamic strategy for treatment:
  Fit parametric regression models for treatment, confounders and death at each follow-up at time t as a function of treatment and covariate history among those under follow-up at time t.
  Monte Carlo Simulation to generate a 10,000-person population under each
  strategy by sampling with each replacement from the original study population(to estimate the standardized cumulative risk under a given strategy).
  Repeat in 500 bootstraps samples to obtain 95% confidence intervals(CI).
- Personalpha : Mention a Prediction model of Hospitals you learned?
  PersonBeta:
  Features : Includes Once patient got admitted to first 24 hours in ICU. Then their is a prediction gap. Then Model includes outcomes after prediction gaps. Outcomes can be In hospital mortality and Prolonged length of stay.

Tech Conversations Notes:

- It would be discuss it in an abstract nature i.e. A tech conversation b/w PersonBeta and Personalpha .
- Content Derived From(And Modified) :Kaggle.com Courses(Apache 2.0 open source license).
- Personalpha : “Hey PersonBeta , Sit Down. ”
- PersonBeta : “Thank you , Good Morning, How are you ?”
  Personalpha : “I am OK.”
- Personalpha : “So, What's your project?”
  PersonBeta : “Dear Personalpha, It is about Predicting Bank Credit Approval Calculator using the Bank database ”.
- Personalpha : “Please give a explanations PersonBeta ?”.
  PersonBeta : “Alright Sir”.
  [Explanation]: First of all libraries are imported. Then data, function and

csv files are imported which are training and testing files. Next, we have to make visualization and data cleaning. Finally, we apply the Algorithm and predicted the output into a csv files.

- Personalpha : “Explain Logistic Regression”.
  PersonBeta :
  [Explanation]:Logistic Regression : Logistic Regression is Classification based Method used for Predicting the output of the Yes/No Problem.
- Personalpha : Does x =15 has imaginary part associated with it in python?
  PersonBeta: Yes but is 0 most of the occasions, which is shown by x.imag and
  not widely used . It is required most of the time in Complex Mathematics problems.
- Personalpha: When Cross Validation used [From the course Intermediate Machine Learning Kaggle.com]?
  PersonBeta: Cross-Validation gives accurate measure of model quality but require more time to run, thus is fine with smaller datasets .
- Conversation Topic : Basics of AI, ML and Deep Learning II.
- Content Derived From (And Modified) :Kaggle.com Courses(Apache 2.0 open source license) and deeplearning.ai coursera.
- Personalpha : PersonBeta Good Morning, In your virtue what should be the most important aspects of A.I.?
  PersonBeta : A.I. System are performs applications including improving healthcare system. Optimizing Environmental Problems. Overall, The A.I. and Systems are designed to put a positive impact on the Quality of life.
- Personalpha :Explain Reinforcement Learning?
  PersonBeta : Reinforcement Learning is how agents can be used in Environment to perform reward based actions .
- Personalpha : What are neural Networks ? In any terms or with help of your own terms?
  PersonBeta: , Along with Deep Learning, each neuron in neural network is a unit with some activation functions attached and these neurons together form neural network based models.
- Personalpha : What are Neural Network based project, Describe at grass root level while approaching a AI based project ?
- After applying the Data Cleaning , Exploratory Data Analysis, Training and Testing split and One hot encoding , Project need to import library. Then, select model type .Then add layers. Add Optimization method. Fit the model Finally.

- Personalpha: What is best application of Machine Learning/Deep Learning in your
  view?
  PersonBeta: Application in Healthcare sector.
- Personalpha : Write full form of following terms:
  MoSCow , SMART,SWOT,VRIO AND KPI.
- PersonBeta:
  MOSCow: Must have, should have, could have and will not have.
  SMART :Specific, Measurable, Achievable ,Relevant and Time bound
  SWOT : Strength, Weakness, Opportunity, Threat.
  VRIO : Value, Rareness, Imitability and Organization.
  KPI : Key Performance Indicator.
- Personalpha : Say something about agile methodology?
  PersonBeta : When a product is launched and deployed but the customer,
  want to change and update the product , it becomes costly to hang out their, update the product. In agile the consumer is given the product in rolling basic, in iterations thus product is put on iterations circle and delivered each time , speed of circle is like dependent on the time ,feed back and the requirements.
- Personalpha : Explain SHAP Values?(From the course Machine Learning Explainability,Kaggle.com)
  PersonBeta: SHAP Values(SHapely Addictive exPlanations) typically breaks down prediction and carry out the impact of features.SHAP values define how model perform with each value.
- Personalpha : What is Big Query? Describe in own words?(From the course,
  Intro to SQL and Advanced SQL ,Kaggle.com)
  PersonBeta: Big Query is SQL based web service , applies SQL to big data sets,
  Commonly step 1 includes, creating client object(after importing libraries),
  client = bigquery. Client().
- Personalpha , In course “Intro to SQL , Kaggle ”? If Quality for Air Data set is given , Explain some steps?
  PersonBeta : Multiple Steps are involved:
  1. Importing the libraries , precisely the big query library.
  2.Creating Client object, creating a reference of dataset using client.datset(),API request using client.get_dataset(),creating table for fetching dataset.

3. Things left is creating the query for importing the cities with pollution or zero pollution , applying limit such as 10 GB or 15 GB to query using .QueryJobConfig() and
finally converting to dataframe using .todataframe().

- Personalpha : What is tags like %% “Name” used in SQL?
  PersonBeta : Approximately, used to gives discription to the results.
- Personalpha: Explain your experience with the parsing in the course “Data Cleaning” on Kaggle.com ?
  PersonBeta : First we import, Data Set and the required files.
  We proceeds furthers by checking the head of the files and type of data.
  we check errors in datasets ,date and correct the error dates that have larger date length.
  Now we parse the provided date to python understandable dates using .todatetime function.
  Now using dt.date or dt.month ,we can have data and month of date.
- Personalpha : Please tell me little bit about fuzzy wuzzy.extract.process and
  character encoding?(From the course Data Cleaning , Kaggle.com)
  PersonBeta: fuzzywuzzy.extract.process is able to find strings similar to the target strings.
  Character Encoding can covert the character to UTF-8 code(python code) and
  vice versa.
- Personalpha: Give brief details of Geospatial Analysis? (From the course : GeoSpatial Analysis , Kaggle.com)
  PersonBeta : Here ,Geopandas as gpd library is used for importing maps.
  Folium is the library used for Geospatial Analysis in Python.
  Folium.map is used to create maps, Heatmaps are used for creating maps.
- Personalpha : Please give a light on different Biases in AI system?(Kaggle: AI
  Ethics Course)?
- PersonBeta:
  Historical Bias: Occurs , when state of the art, in which data generated is flawed.
  Measurement Bias: Accuracy of data varies across the groups.
  Representation Bias: The dataset used to represent for training the model, poorly serve the purpose of the model.
  Aggression Bias: Unappropriated grouping in the database so that the

database will serve unappropriated results among groups.
Evaluation Bias: The benchmark data is different than the actual data.
Deployment Bias: Model solves different problem than the actual problem.

- Personalpha :Describe ReLU, Maximum Pooling,Data Augmentation?
  PersonBeta:ReLU is Non Linear, activation function, sets negative value to 0,
  A rectifier attached with neuron,(rectifier linear unit) also called ReLU Activation.
- Data Augmentation : Sometimes same car might have left, right or rotated
  versions available in the data, and Data Augmentation involves during the
  training more data can be generated from the single images.
- Maximum Pooling :Maximum Pooling function replaces the traces of activation function or compressed images features to the maximum available patch of the activations functions, that can be further processed.
- Personalpha: Some adventurous activities , you have experienced ?
  PersonBeta:
  Sometimes provides bit of adventure act as a stress reliever. For me , often thing like cycling near green fields can provide adventures and refreshes the brain.
  In my point of view , data visualization sometimes gives essential refreshment
  to the dataset, so that efficiently can be attained. And Secondly, web application including Flask can create help in applying machine learning for
  building applications.
- Personalpha : Explain the terms Model Cards and AI fairness?(from the course: AI ETHICS , Kaggle.com)
  PersonBeta: In the course,
  For AI Fairness : Their are four criteria are useful point:
  Demographic parity: Model is said to be fair, if the composition of people who are selected, by the model matches the group membership percentages of the
  model.
  Equal Opportunity: True Positivity or Sensitivity rate, the rate at which the model picks up the things that are true positively or affirm the positive things,

for each group. Equal Accuracy: Percentage of correct classification, People who are true are true for each group and Objects who are false are false are found false in each group.
Group Unawareness: Removes all the group membership information from the model, say removing the gender data from all the group.
Model cards : Model cards are typical documents that carry the important information of the selected documents.

- Personalpha: (From the Course Machine Learning Explainability) Is Machine Learning Model Completely “black box” or some insights can be gained?
  PersonBeta:(Answers from the course)
  Although Machine Learning models are mostly “blackbox”, but some insights
  can be generated:
  What features in the data are the most important?
  From a single prediction from a model, Every time their is a prediction , how does feature affect the prediction.
  How does each feature affect the prediction when data size /population is
  too large?
- The following conversations have been taken from the
  learning ,definitions and skills attained after finishing the courses:
  Kaggle.com (Intro to Game AI and Reinforcement Learning).
- Personalpha : In the game Connect four, where two players have to drop discs,
  with objective to get four discs in a row, let me know about different functioned intelligent agents you came to know?
  PersonBeta:
- Agent_Random: Fill void space of the game with random moves or the disc that is to be filled.
  Agent_Middle: Agent that selects always a middle column(Whether it is valid i.e. space is left for new disc if not then move is invalid and agent looses).
  Agent_Leftmost: Agent selects the leftmost valid column.
- Personalpha : Explain one step look ahead with the help of heuristic approach?
  PersonBeta: “One step look ahead ” , is a term used to explain that the agent looks only(one step) not deeper view of the game at a time and then use heuristic (complete tree structed based on agent move than the opponent

agent move) to select the move with highest score.(+ve score, if 3 discs of agent's got into a same row consequently, 0 if not happens , -ve score if the opponent agent's disc got into a same raw consequently.

- Personalpha: Min Max Algorithms , Would Like to explain.?
  PersonBeta :
- Now, Min Max Algorithm , Main idea is the agent want to perform move that maximizes score but the opponent agent want to minimize it .So, rival agent tries to reverse the agent's move . Thus, agent's main objective is optimize the move and perform best score.
- Conversation : Basics of AI, ML and Deep Learning.
- Content Derived From (And Modified):Kaggle.com Courses(Apache 2.0 open source license) And Machine Learning Standford Online Coursera.
- I am your host PersonBeta , and guest supporter Personalpha is with me.
- PersonBeta : Welcome Personalpha.
- Personalpha : Dear PersonBeta
  Personalpha : Q and A , PersonBeta .
- PersonBeta : May be it is good time to proceed.
  Personalpha : What is Machine Learning in your own terminology.
- PersonBeta : Machine Learning are basically Mathematical implemented in programming languages readily to produce data based results without predefined set of rules related to data.
- Personalpha : Now, What you learned about Supervised and Unsupervised Machine Learning in this course.
- PersonBeta : Supervised Learning is like we know what the results or the target variables are .In Unsupervised Learning we have less awareness about the output variable.
- Personalpha : Tell, something interesting about Mean?
  PersonBeta : Well, Mean is the most used Central Tendency such as T Test, Normal Distribution and Regression. Mean is used in correlation. And in correlation if two things are correlated, they influence other but their existence may or may not linked to each other.
- Personalpha: Give the importance of Input_shape[] in a neural network?
  PersonBeta : The data is often of tabular form in a neural network, input shape represents the dimensions of the dataset.
- Conversation from the course Kaggle.com (Intro to deep Learning).
- Personalpha: What is Sequence Layers?
  PersonBeta : Model based upon sequence layer consist of layers such that the first layer is the input layer and final layer is the output layer connected fully.

Dense layer includes a neuron cell where each neuron is connected to all neurons of previous layer.

- Personalpha : Introduce Early Stoppage function?(From the Course Intro to Deep
  Learning, Kaggle.com)
  PersonBeta: We simply stop the training loss when the model loss is not decreasing any more using the Early Stoppage function.
- Personalpha: Explain a cycle of Gradient boosting model?(From the course Intermediate machine learning , Kaggle.com)
  PersonBeta: We select a model, make predictions, calculate loss, train new models, add new model to ensemble, make predictions and repeat.
- Personalpha : Tell me about the usage of rstrip function?(From the course Intro to Python, Kaggle.com)
  PersonBeta: Return the string with its trailing character removed.
- Personalpha : Do you Know KDE plot?(From the course Data Visualization , Kaggle.com)?
  PersonBeta: Kernel Density Function,(KDE) plot are like smoothed histogram,
  using sns.kdeplot command, shade = True colors area below the curve data= takes the dataset.
  sns.kdeplot(data=abc_data['length'],shade=True).
  While sns.distplot is used for creating a histogram.
- Content Credit: [Module-Select from Where, Intro to SQL
  Course :Kaggle.com]
  Personalpha: "What's up with the triple quotation marks (""")?"
  PersonBeta: "These tell Python that everything inside them is a single string, even though we have line breaks in it. The line breaks aren't necessary, but they make it easier to read your query."
  Personalpha: "Do you need to capitalize SELECT and FROM"?
  PersonBeta : "No, SQL doesn't care about capitalization. However, it's customary to capitalize your SQL commands, and it makes your queries a bit easier to read".
- Personalpha: Order by sorts the data while group by sorts the data in different groups. [From Intro to SQL Course :Kaggle.com]?
  PersonBeta : Right, While Join combined the values accordingly.
- Thank you…