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REPORT ON IBM CBSE AI K12 TEACHER TRAINING POWERED BY CBSE & IBM

**Workshop title:** CBSE Workshop on IBM CBSE AI K12 TEACHER TRAINING powered by CBSE and IBM

Date: 19-21 September, 2019

Venue: Bal Bharati Public School, Noida

Attended by: 59 Teachers from Delhi/NCR and Neighbouring Cities

Resource persons: Mr Bishwa Ranjan Behera, Learning Links Foundation
Mr Akash Chaudhary, Learning Links Foundation

The Resource Person from Learning Links Foundation, Mr Bishwa Ranjan Behera and all the participants from different schools were welcomed by School Principal, Ms Asha Prabhakar, who motivated and encouraged all the participants for the three days training session. The session began with lighting of the lamp.
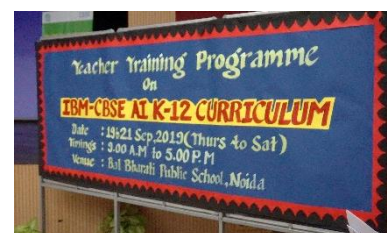
DETAILED REPORT
DAY I (19.09.2019, Thursday)

Day I focused on the basics of AI and to make the participants AI ready. The session started with an interesting activity wherein all the groups were asked to think of an object and any five features of that object. Then each of the groups spoke the features one by one and a guessing game started wherein others started guessing the object the group had thought of.

What is Artificial Intelligence and how it will bring in a revolution was discussed. To eliminate the misconception of AI and Automation being same, a session on the difference between AI and Automation was taken up. The Current Focus and Future of AI different areas/industry where AI is expanding were discussed in detail. The resource person emphasized that the works which are hazardous to human beings will be replaced with robots which are intelligent systems with capabilities to take decisions real time. The

Transportation, Manufacturing, Healthcare, Education, Media and Customer Care sectors will see a boom in AI Enabled devices and systems.

Human Intelligence Vs Machine Intelligence

The different parameters like Speed of execution, Less Biased, Operational Ability and Accuracy were discussed in order to compare Human Intelligence and Machine Intelligence.

Data + Machine Learning Models = Artificial Intelligence

TED TALK by Kevin Kelly

A video of a TED Talk by Kevin Kelly was shown which gave an insight on how AI can revolutionize the world. He explained that Intelligence is a symphony of different types of intelligences. He explained that thinking different is the new engine and expressed that in future AI will make new jobs as compared to the jobs that will become non-existent. The video was very inspirational.

Inspirations of AI

The resource person explained that the history of AI goes back to 1920. It was then, a Czech writer Karel Capek published a science fiction play named Rossum's Universal Robots commonly known as RUR's. It was a wonderful experience to learn that the term 'Artificial Intelligence' was foreseen by our ancestors.

Neorons and Perceptron

The motivation for AI comes with the strong desire to make machines which can think like human brain. The resource person explained about neurons and perceptron.

The different **jargons of AI** were taken up in detail:
- o Data Science
- o Machine Learning
- o Supervised Learning
- o Unsupervised Learning
- o Reinforcement Learning
- o Deep Learning
- o Artificial Intelligence

It was discussed that Data acquisition and preparation was an important step in Data Science. Different types of problems that can be solved using AI were also explained by the resource person. The types of machine learning – Supervised, Unsupervised and Reinforcement were elaborated in detail with real life examples.

The last session was the most interesting one where teachers were given training on creating a smart assistant in Scratch to control virtual devices. The hands on activity was liked by all the participants. The project was created on the portal machinelearningforkids.co.uk. In this portal, one can make, train or test their Scratch Projects.

DAY II (20.09.2019, Friday)

Day II focussed on hands on session on IBM Cloud Services. IBM Watson is a fast and easy-to-use integrated AI platform aided with powerful computer algorithms of Artificial Intelligence to perform complex tasks. Different examples of IBM Watson in action were showcased:

o **Watson as an advisor**

teacheradvisor.org is a site which has all the lessons for Mathematics from Grade I to Grade 8. These lessons are customizable. Teachers can make lesson plans and activities for the children.
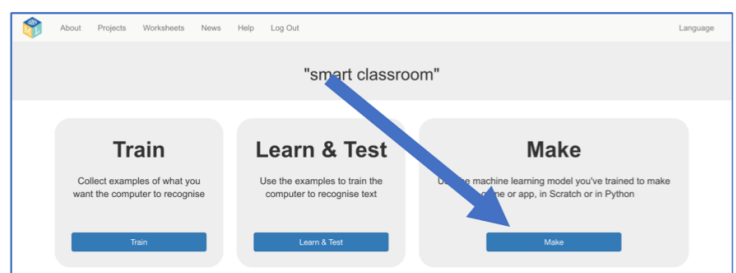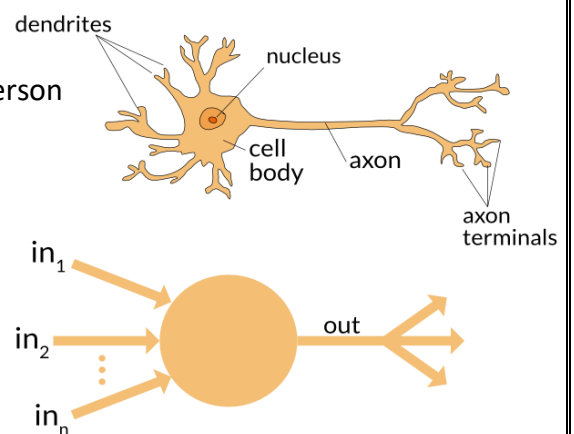
o **Watson debater**

A debater powered by IBM Watson with large amount of data. To debate with humans and provide deep insights about the topic being discussed.

o **Watson Discovery**

Watson Discovery is an AI search technology that eliminates data silos and retrieves information buried inside enterprise data. **Watson Discovery** applies the latest breakthroughs in machine learning, including natural language processing capabilities, and is easily trained to your domain.

All the participants were trained for setting up their account on **cloud.ibm.com** followed by rigorous training on the following three services:

Visual Recognition
IBM

Find meaning in visual content! Analyze images for scenes, objects, and other content. Choose a default model off the...

APIs and services

Speech to Text
IBM

Low-latency, streaming transcription

APIs and services

Text to Speech
IBM

Synthesizes natural-sounding speech from text.

APIs and services

The resource persons suggested that the practical's in AI can be conducted through Cloud Computing and Cloud Infrastructure. The day was entirely hands on activity based and the teachers were able to try all the features themselves.

Ms Preeti, BBPS Pitampura gave a demonstration using the portal machinelearningforkids.co.uk and the API key generated from IBM Cloud to teach the model classification of cats and dogs. It was an encouraging session for the other participants.

It was a great session as it gave a hands on training on the use of the Cloud Services and how without necessary AI hardware and software, anybody could create AI enabled applications at home.

The day ended with a detailed discussion on the AI Project LifeCycle. All the stages of the project was enthusiastically put forth by the resource persons. The session gave an insight on Data Acquisition, Data Understanding, Data Preprocessing, Data Visualization, 3D Data Visualization, Data Modelling and Deploying Application.

DAY III (21.09.2019, Saturday)

Day III began with discussions on AI Ethics and various case scenarios on real life. All the participants played a game on moralmachine.mit.edu which was based on making ethical choices and showing unbiased nature. It was an interesting session to understand the importance of creating ethical AI systems.

Areas of Ethical Focus were elaborated as:
- o Responsibility and accountability
- o Fairness and Unbiased systems
- o Value alignment
- o Explainability
- o User Data Rights

It was understood that being fair is very important while developing AI systems.

The other session was on Big Data. The resource person explained all about data, how is it generated, what is big data, Impact, sources and forms of Big Data.

The data can be generated by:
- o Wearable's data (fitness bands, heart rate trackers etc.)
- o People generated data
- o Machine generated data
- o Business generated data

He explained that the key aspects of Big Data Platform are Integration, Analysis, Visualization, Security and governance. A Debate was conducted on the concept of big data and the utilization of the data produced from the various apps and websites. **An example of big data** might be petabytes (1,024 terabytes) or exabytes (1,024 petabytes) of data consisting of billions to trillions of records of millions of people—all from different sources (e.g. Web, sales, customer contact center, social media, mobile data and so on).

5V's of Big Data were talked at length with each 'V' explained with real life examples.
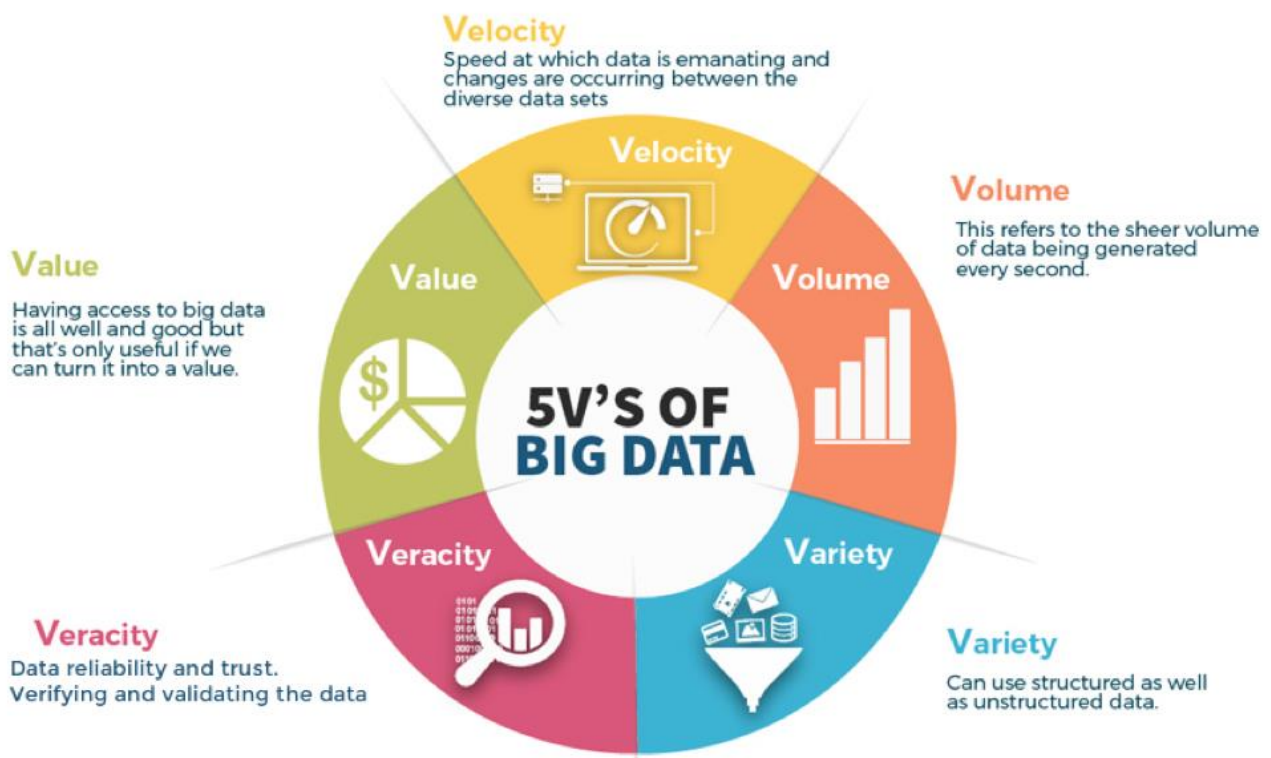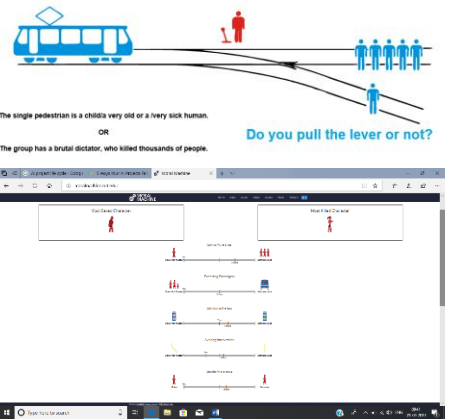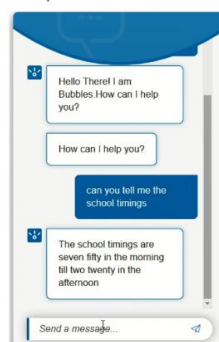
Ms Asha Menon, BBPS Noida presented her chatbot 'Bubbles' that she had developed using the IBM Watson account. The step by step method to create a chatbot API was discussed with all the participants. The details like creating intents, entities, dialogs was well explained. The session was well received by the participants.
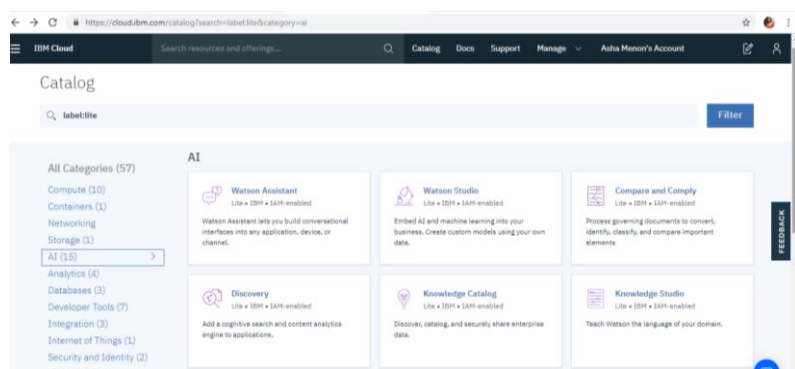
Chatbot Experiment – Asha Menon BBPS Noida

The three day workshop came to an end on a positive note with all the participants wanting for more such workshops from the CBSE to enhance their practical skills on Artificial Intelligence.

GENERAL FEEDBACK	YES /NO/ NOT SURE
The workshop was applicable to my job	Yes
We will recommend this workshop for other faculty members.	Yes
The program was well paced within the allotted time.	Yes
The material was presented in an organized manner	Yes
The resource person was a good communicator	Yes
The resource person was knowledgeable on the topic	Yes
We would be interested in attending a follow-up, more advanced workshop on this same subject	Yes
We will be able to conduct follow up workshop for the benefit of fellow Staff Members	Yes

Reported by Ms Meetu Tripathi and Ms Asha Menon