**Final Project**

**(Data Science)**

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**Introduction:**

The **Teachable Machine** is an effort by Google to make **Machine** Learning and AI accessible to the wider public, without requiring any specialized training, knowledge in Computer Science or coding. **Teachable Machine** is a web tool that makes it fast and easy to create **machine** learning models for your projects, no coding required. Train a computer to recognize your images, sounds, poses, then export your model for your sites, apps, etc.

**Learn Machine Steps:**

* I am learning Teachable Machine How can it work
* I am working Image Project how it use
* I can take few sample Images and testing it
* I can create 5 sample classes for testing
* And I can click the Training button and check the result
* Also I can Preview the different images results
* Last is I can Export Model and get the Code for taking the images
* Once we finished training and we are happy with the results.
* **Collecting data**:

Be it the raw data from excel, access, text files etc. this step (gathering past data) forms the foundation of the future learning. The better the variety, density and volume of relevant data, better the learning prospects for the machine becomes.

* **Preparing the data**:

Any analytical process thrives on the quality of the data used. One needs to spend time determining the quality of data and then taking steps for fixing issues such as missing data and treatment of outliers. [Exploratory analysis](https://www.analyticsvidhya.com/blog/2015/02/data-exploration-preparation-model/) is perhaps one method to study the nuances of the data in details thereby burgeoning the nutritional content of the data.

* **Training a model**:

This step involves choosing the appropriate algorithm and representation of data in the form of the model. The cleaned data is split into two parts train and test (proportion depending on the prerequisites); the first part (training data) is used for developing the model. The second part (test data), is used as a reference.

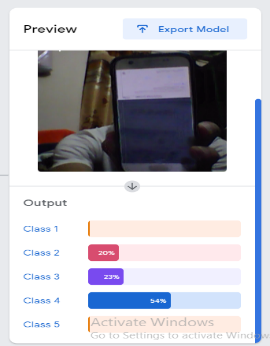
* **Evaluating the model**:

To test the accuracy, the second part of the data (holdout / test data) is used. This step determines the precision in the choice of the algorithm based on the outcome. A better test to check accuracy of model is to see its performance on data which was not used at all during model build.

* **Improving the performance**:

This step might involve choosing a different model altogether or introducing more variables to augment the efficiency. That’s why significant amount of time needs to be spent in data collection and preparation.

**Testing Images:**

**     **

**Technology:**

**Teachable Machine uses** Tensor flow, JS a library for machine learning in JavaScript, to train and run the models you make in your web browser. Look at the Teachable Machine library built on top of Tensor flow, JS on GitHub.

**Conclusion:**

**Teachable Machine** is a tool created by Google, to make machine learning and artificial intelligence available to everyone. With teachable machine, people are able to create simple and effective algorithms.

* Identify patterns on images
* Identify patterns on audio
* Identify poses or gestures

Using teachable machine is quite simple,

* Get data
* Train your model
* Export your model

Students can very easily learn Machine Learning and easily understand only few steps which can we have learn. Teachable Machine is a Web Tool that make it fast and easy to create machine learning model for your project, no coding required. Train a computer to recognize your images, sounds, poses, then export your model for your sites, apps.

**GitHub ID:**

[**Sohaib-Ajmal**](https://github.com/Sohaib-Ajmal/Image-Project)

**YouTube Link:**

**https://youtu.be/i7sqCJot9O4**

**Summery:**

The design of machine learning which can be thought how to solve problems in the real world is of importance in our daily life. Machine Learning is a subset of AI where the machine is trained to learn from its past experience. The past experience is developed through the data collected. Then it combines with algorithms such as Naïve Bayes, Support Vector Machine to deliver the final results. What differentiates a good machine learning professional from an average one is the quality of feature engineering and data cleaning which happens on the original data. The more quality time you spend here, the better it is. This step also takes the bulk of your time and hence it helps to put a structure around it. You can refer series of articles below to learn different stages of data explorations.

# References

Baldi, P. and Brunak, S. (2002). Bioinformatics: A Machine Learning Approach. Cambridge, MA: MIT Press.  
This book offers a good coverage of machine learning approaches - especially neural networks and hidden Markov models in bioinformatics.

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Chakrabarti, S. (2003). Mining the Web, Morgan Kaufmann.