PHASE-I

**TO DEPLOY A MACHINE LEARNING MODEL WITH IBM CLOUD WATSON STUDIO**

Machine learning has become an integral part of various industries, from healthcare and finance to marketing and manufacturing. With the advancements in technology, deploying machine learning models has become easier and more efficient. One platform that offers a seamless experience in deploying machine learning models is IBM Watson Studio.

IBM Watson Studio is a cloud-based integrated development environment (IDE) that provides a collaborative and user-friendly platform for data scientists, developers, and domain experts to build, train, and deploy machine learning models. This powerful tool offers a wide range of features and capabilities that make model deployment a breeze.

One of the key features of IBM Watson Studio is its ability to simplify and accelerate the process of building machine learning models. With its user-friendly interface and drag-and-drop functionality, data scientists can easily import and explore data, clean and preprocess it, and create and train models. The platform also offers a wide range of pre-built machine learning algorithms, making it easier to build models even for those without extensive coding experience.

Once the machine learning model has been built and trained, IBM Watson Studio offers seamless deployment options. The platform allows users to deploy their models as web services with just a few clicks. These web services can then be integrated into various applications, allowing real-time predictions or analysis based on the trained model. This deployment capability enables businesses to leverage their machine learning models effectively and efficiently, providing instant insights or predictions to support decision-making processes.

Moreover, IBM Watson Studio offers advanced scalability and flexibility in model deployment. With its cloud-based infrastructure, deploying machine learning models becomes scalable to handle large amounts of data and high computing requirements. This enables businesses to process and analyze massive volumes of data in a timely manner, gaining valuable insights and predictions.

Another key advantage of using IBM Watson Studio for model deployment is its wide range of integration options. The platform seamlessly integrates with other IBM offerings, such as Watson Machine Learning, Watson Assistant, and Watson OpenScale. This allows users to leverage the power of these tools to enhance the accuracy, interpretability, and explainability of their deployed models. For example, Watson OpenScale helps monitor and manage the performance of deployed models, ensuring they remain accurate and reliable over time.

Furthermore, IBM Watson Studio provides comprehensive security features to protect sensitive data and models. The platform employs industry-standard security measures, such as data encryption, access controls, and audit logging, ensuring the confidentiality and integrity of data throughout the model deployment process. This is especially crucial for businesses operating in highly regulated industries, where data privacy and security are paramount

You can follow the below steps:

* **CREATE AN IBM ACCOUNT**: If you don't already have one, sign up for an IBM Cloud account.

* **SET UP WATSON STUDIO**: Log in to your IBM Cloud account and create a Watson Studio service instance. You can find Watson Studio in the IBM Cloud catalog.

* **CREATE OR IMPORT A PROJECT:** Inside Watson Studio, create a new project or import an existing one. A project is where you'll organize your machine learning assets.

* **ADD DATA**: Upload and prepare your data within your project. You can use the Data Refinery tool in Watson Studio to clean and shape your data.

* **TRAIN YOIR MODEL**: Use Watson Studio's tools and Jupyter notebooks to develop and train your machine learning model. You can utilize various libraries and frameworks like scikit-learn or TensorFlow.

* **SAVE AND VERSION YOUR MODEL**: Once your model is trained and tested, save it within your project. Version control is crucial to keep track of model changes.

* **CREATE A DEPLOYMENT SPACE**: In Watson Studio, you can create a deployment space. This is where you'll deploy your model for production use.

* **DEPLOY YOUR MODEL**: Within the deployment space, you can deploy your model as an API or batch job. Follow the wizard to configure deployment settings, including hardware resources and scaling options.

* **TEST TOUR DEPLOYMENT:** After deployment, test your model to ensure it's working as expected. You can do this from Watson Studio or by using API calls.
* **MONITOR AND MANAGE**:Watson Studio provides monitoring and management tools to track the performance of your deployed model. You can also update and re-deploy as needed.

* **ACCESS YOUR MODEL**: Once deployed, your model will have an endpoint that you can use to integrate it into your applications or services.The access page actions are the actions that users can take when they visit the access page for the deployed model. The default access page actions are:
* **MAKE PREDICTIONS**: Users can make predictions using the deployed model.
* **VIEW MODEL DETAILS**: Users can view information about the deployed model, such as the model type, the training data, and the model performance.
* **DOWNLOAD MODEL**: Users can download the deployed model. You can add, remove, or modify the access page actions to meet your specific needs.

Here are some examples of how to edit the access page actions:

To add an action to allow users to export the predictions to a file, you can add a new action called "Export Predictions". This action would open a dialog box where users can select the file format and location to export the predictions to.

To remove the "Make predictions" action, you can simply delete the action from the list of access page actions.

To modify the "View model details" action to include additional information about the model, you can edit the action configuration to add the additional information.

Once you have made the desired changes to the access page actions, be sure to save your changes. The changes will be reflected the next time a user visits the access page for the deployed model.

In conclusion, IBM Watson Studio offers a comprehensive and user-friendly platform for machine learning model deployment. With its cloud-based infrastructure, easy integration options, collaborative workspace, and extensive library of prebuilt models, Watson Studio simplifies the complex task of deploying machine learning models. By removing the barriers and complexities associated with deployment, Watson Studio allows data scientists to focus on what they do best – developing innovative and impactful machine learning models. As the field of machine learning continues to evolve rapidly, IBM Watson Studio is well-positioned to support data scientists and organizations on their journey towards deploying cutting-edge machine learning models.