

An Internship Report

On

AI AND ML VIRTUAL INTERNSHIP

Submitted in partial fulfillment of requirements for the award of degree of

Bachelor Of Technology

In

Computer Science & Engineering

By

Name -Rollno



Department of Computer Science & Engineering

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

Approved by AICTE, Permanently Affiliated to JNTU, KAKINADA

**Accredited by NBA & Accredited by NAAC with 'A' Grade
Nambur (V), Peda Kakani (M), Guntur (Dt) – 522508**

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Nambur (V), Pedakakani (M), Guntur (Dt) – 522508



BONAFIDE CERTIFICATE

This is to certify that this Internship report is the bonafied work of “**student name (rollno)**”, who carried out the Internship under my SPOC during the academic year 2021-2022 towards partial fulfillment of the requirements of the Degree of **Bachelor of Technology in Computer Science & Engineering** from **Jawaharlal Nehru Technological University, Kakinada**.

Signature of the SPOC

Dr. sk.Khaja Mohiddin M.Tech Ph.D;
AssocProfessor, CSE.

Signature of the Head of the Department

Dr. V.Rama Chandran M.Tech;Ph.D
Professor, CSE.

Submitted for Viva voce Examination held on _____

EXTERNAL EXAMINER

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

Department of CSE



CERTIFICATE OF AUTHENTICATION

I solemnly declare that this Internship report “**AI AND ML VIRTUAL INTERNSHIP**” is the Bonafide work done purely by me, carried out under the Single Point Of Contact of Dr. **sk.Khaja Mohiddin**, Assoc.Prof , towards partial fulfillment of the requirements of the Degree of Bachelor of Technology in CSE from Jawaharlal Nehru Technological University, Kakinada during the year 2021-22.

Signature of the Student

Name – 19xxxx

ABSTRACT

The objective of this **AI and ML Virtual Internship** provides the strong foundation about the concepts and terminology of Artificial Intelligence and machine learning. AWS fundamentals which offer common concepts about label, build, train, and deploy a custom machine learning model through a guided, hands-on approach.

Solution architecture provides the ground for software development projects by tailoring IT solutions to specific business needs and defining their functional requirements and stages of implementation. It is comprised of many subprocesses that draw guidance from various enterprise architecture viewpoints. With this, people may Understand the requirements and the process to deploy various AWS services like **Development & Management, Application Services** and **Foundation Services**. So, A Capstone Project proposal is to create a platform that can be used to build, test, deploy at scale using AWS. The solution will offer a forecasting that will simplify building of infrastructure at a click of a button and automate maintenance and scaling based on volumes.

Artificial intelligence (AI) and machine learning (ML) have caused a paradigm shift in healthcare that can be used for decision support and forecasting by exploring medical data.

LETTER OF UNDERTAKING

To
The Principal
Vasireddy Venkatadri Institute of Technology
Namburu,
Guntur.

Subject: Submission of Internship Report on AI AND ML Virtual Internship on Eduskills platform.

Dear Sir,

I am pleased to submit my internship report on “**AI AND ML Virtual Internship**” as per your instruction to fulfil the requirements of the Degree of **Bachelor of Technology** in CSE from **Jawaharlal Nehru Technological University, Kakinada** . While preparing this report, I have tried my level best to include all the relevant information, explanations, things I learned from the Internship Courses, my contribution to this programme to make the report informative and comprehensive. It would not have been possible to complete this report without your assistance, of which I am very thankful. Working for two months on Cloud Virtual Internship in online was amazing and a huge learning opportunity for me. Also, it was a great experience to prepare this report and I will be available for any clarification, if required. Therefore, I pray and hope that you would be kind enough to accept my Internship Report and oblige thereby.

Yours Obediently,

Name

ID: 19xxxx

E-mail: xxxxx@vvit.net

CERTIFICATE OF INTERNSHIP

(Paste your certificate here)

ACKNOWLEDGEMENT

We take this opportunity to express our deepest gratitude and appreciation to all those people who made this Internship work easier with words of encouragement, motivation, discipline, and faith by offering different places to look to expand my ideas and help me towards the successful completion of this Internship work.

First and foremost, we express our deep gratitude to **Mr. Vasireddy VidyaSagar**, Chairman, Vasireddy Venkatadri Institute of Technology for providing necessary facilities throughout the Computer Science & Engineering program.

We express our sincere thanks to **Dr. Y. Mallikarjuna Reddy**, Principal, Vasireddy Venkatadri Institute of Technology for his constant support and cooperation throughout the Computer Science & Engineering program.

We express our sincere gratitude to **Dr. V. Rama Chandran**, Professor & HOD, Information Technology, Vasireddy Venkatadri Institute of Technology for his constant encouragement, motivation and faith by offering different places to look to expand my ideas.

We would like to express our sincere gratitude to our VVIT INTERNSHIP I/C Mr.U. Madhavaiah, SPOC **sk.Khaja Mohiddin** and our Internship Coordinators **Mrs. D. Vamsi & Mrs. B. Ramya Asa Latha** for his insightful advice, motivating suggestions, invaluable guidance, help and support in successful completion of this Internship.

We would like to take this opportunity to express our thanks to the **teaching and non- teaching** staff in the Department of Computer Science & Engineering, VVIT for their invaluable help and support.

Name-Rollno

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AWS Academy Machine Learning Foundation:

Module	Module Contents	Stipulated Date	Completion Date
Module 1	Welcome to AWS Academy Machine Learning Foundations <ul style="list-style-type: none">• Course Introduction Video• Student Guide	13-04-22	
Module 2	Introducing Machine Learning <ul style="list-style-type: none">• Module 2 Introduction Video• Section 1 - What is machine learning?• Section 2 - Business problems solved with machine learning• Section 3 - Machine learning process• Section 4 - Machine learning tools overview• Section 5 - Machine learning challenges• Demo - Amazon Sagemaker• Module 2 Wrap-up Video• Student Guide• Module 2 Knowledge Check	20-04-22	
Module 3	Implementing a Machine Learning pipeline with Amazon SageMaker	27-04-22	

	<ul style="list-style-type: none"> • Module 3 Introduction Video • Section 1 - Formulating machine learning problems • Section 2 - Collecting and securing data • Section 2a - Extracting, transforming, and loading data • Section 2b - Securing your data • Lab 3.1 - Amazon SageMaker - Creating and importing data • Section 3 - Evaluating your data • Section 3a - Describing your data • Section 3b - Finding correlations • Lab 3.2 - Amazon SageMaker - Exploring Data • Section 4 - Feature engineering • Section 4a - Cleaning your Data • Section 4b - Dealing with outliers and selecting features • Lab 3.3 - Amazon SageMaker - Encoding Categorical Data • Section 5 - Training • Demo - Training a model using Amazon SageMaker • Lab 3.4 - Amazon SageMaker - Training a model • Section 6 - Hosting and using the model • Lab 3.5 - Amazon SageMaker - Deploying a model • Section 7 - Evaluating the accuracy of the model • Section 7a - Calculating classification metrics 		
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	<ul style="list-style-type: none"> • Section 7b - Selecting classification thresholds • Lab 3.6 - Amazon SageMaker - Generating model performance metrics • Section 8 - Hyperparameter and model tuning • Lab 3.7 - Amazon SageMaker - Hyperparameter Tuning • Demo - Using Hyperparameters • Demo - Accelerate with Amazon Sagemaker Autopilot • Module 3 Wrap-up Video • Challenge lab • Student Guide • Module 3 Knowledge Check 		
Module 4	Introducing Forecasting <ul style="list-style-type: none"> • Module 4 Introduction Video • Section 1 - Forecasting overview • Section 2 - Processing time series data • Section 2a - Special considerations for time series data • Section 3 - Using Amazon Forecast • Module 4 Wrap-up Video • Demo - Using Amazon Forecast • Lab 4 - Creating a forecast with Amazon Forecast • Student Guide • Module 4 Knowledge Check 	4-05-22	
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	<ul style="list-style-type: none"> • Module 5 Introduction Video • Section 1 - Introduction to computer vision • Section 2 - Image and video analysis • Section 2a - Facial recognition • Demo - Video Analysis with Amazon Rekognition • Section 3 - Preparing custom datasets for computer vision • Section 3a - Creating the training dataset • Section 3b - Creating the test dataset • Section 3c - Evaluate and improve your model • Demo - Labeling images with Amazon Ground Truth • Module 5 Wrap-up Video • Student Guide • Lab 5 - Guided Lab: Facial Recognition • Module 5 Knowledge Check 		
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	<ul style="list-style-type: none"> • Demo - Amazon Translate • Student Guide • Lab 6 - Amazon Lex - Create a chatbot • Module 6 Knowledge Check 		
Module 7	Course Wrap-Up <ul style="list-style-type: none"> • Course Wrap-up Video • Student Guide 	25-05-22	

About Aws Academy:

AWS Academy provides higher education institutions with a free, ready-to-teach AI and ML curriculum that prepares students to pursue industry-recognized certifications and in-demand data science jobs. Our curriculum helps educators stay at the forefront of AWS AI and ML innovation so that they can equip students with the skills they need to get hired in one of the fastest-growing industries.

EduSkills with VVIT:

MEMORANDUM OF UNDERSTANDING

BETWEEN



EduSkills
Nation Building Through Skills

EduSkills Foundation ("EduSkills")

AND



Vasireddy Venkatacari Institute of Technology

FOR EDUSKILLS MEMBERSHIP PROGRAM

Work Samples

Capstone Project:

This project provides me with an opportunity to demonstrate the solution design skills that I have developed throughout this course.

Assignment is to design and deploy a solution for the following case:

Introducing the Example Social Research Organization

Example Social Research Organization is a (fictitious) non-profit organization that provides a forecast by creating data sets.

Following are the tasks to be completed to design the social research organization:

- Deploy the data sets like Target time series, Item Meta data, Related Time series.
- Update the data sets in Inventory planning Domain
- Update application parameters in an AWS Systems Manager Parameter Store
- Secure the application to prevent public access to backend systems

User interface:

The screenshot displays the Amazon Forecast console interface. The left sidebar shows the navigation menu with options: Dataset groups, Dashboard, Datasets, Predictors, Forecasts, and Forecast lookup. The main content area is titled 'Target time series data' and includes an 'Overview' section with details about the dataset (MAC000345), its ARN, status (Active), and creation time. Below this is a 'Dataset imports' section showing a table with columns for Import name, Status, Message, Location, and Created. The table lists one import named 'MAC000345' with a status of 'Active' and a location of 's3://london-smart-meter-309136773508/MAC000345.csv'. At the bottom, there is a 'Dataset import field statistics' section showing statistics for the 'Demand' field, including the number of entries (34590), minimum (0.03), average (0.19919178953743868), standard deviation (0.20043648521084473), number of unique entries (1258), maximum (2.925), entries that aren't numbers (NaN) (0), and empty entries (0).

This is the first display interface after executing the capstone project. It contains the options like predictors, forecast, forecast lookup. When the Query option is clicked the following interface is displayed.

Amazon Forecast

Dataset groups

- MAC000345
 - Dashboard
 - Datasets
 - Predictors
 - Forecasts
 - Forecast lookup

Amazon Forecast > Dataset groups > MAC000345 > Datasets

Datasets (3) [Info](#)

[View details](#) [Delete](#) [Upload dataset](#)

	Dataset name	Dataset type	Status	Latest import status	Domain	Created
<input type="radio"/>	MAC000345	TARGET_TIME_SERIES	Active	Active	INVENTORY_PLANNING	Wed, 08 Jul 2020 18:33:44 GMT
<input type="radio"/>	-	ITEM_METADATA	Not created	Not uploaded	-	-
<input type="radio"/>	-	RELATED_TIME_SERIES	Not created	Not uploaded	-	-

Tags (0) [Info](#)

A tag is an administrative label that you assign to AWS resources to make it easier to manage them. Each tag consists of a key and an optional value.

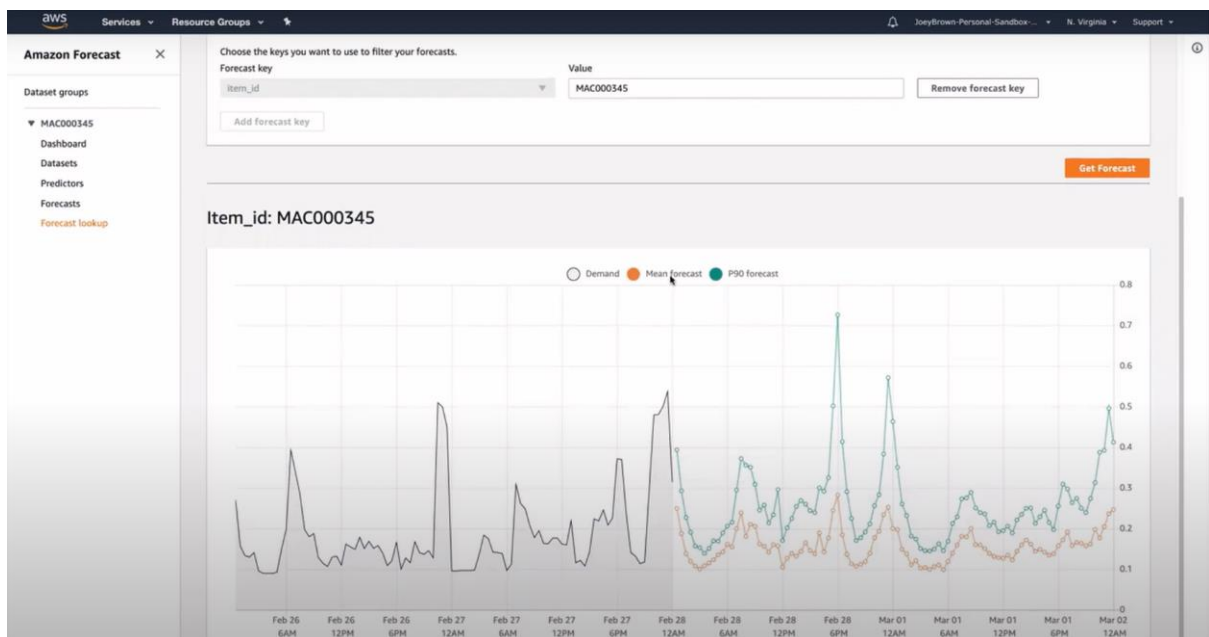
[Manage tags](#)

Key	Value
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Datasets

This list displays all the datasets that belong to the dataset group that was selected.

When the drop box is clicked, the following options will be displayed:



Conclusion

As a result, I'd like to conclude that internship played a critical part in not only expanding my theoretical but also practical knowledge.

By pursuing this internship, I was able to get AI and ML based knowledge. As AI and ML is a popular technology, it is both beneficial and promising in the future. Because of it we are predicting many trends and patterns for further estimation, this platform is user friendly and simple to use.