Kaleem, Ushbah

AI Engineer

Manager: Shaheer Ahmad Khan

Evaluated By: Shaheer Ahmad Khan

Technical Performance Review

Organization: AI Med (Shaheer Ahmad Khan)

Location: Lahore

07/10/2023 - 07/10/2024

Overall

Manager Overall Evaluation

Calculated Rating: 3

Rating: Meets

Comment: After joining the team, Ushbah took time to get accustomed to our work environment and pace. There were punctuality, timeliness, and quality of work concerns initially, but in the last five months she has been with us, there have been gradual improvements. Although some areas like problem-solving (programming) still need work, the general direction seems promising and she continues to make significant contributions towards the team's goals. As mentioned, her research skills are good, and given the right projects she can contribute more effectively.

Competencies

Continuous Learning

Assesses own strengths and weaknesses. Pursues training and development opportunities. Seeks feedback to improve performance. Shares expertise with others. Strives to continuously build knowledge and skills.

Manager Evaluation		Employee Evaluation	
Rating:	**Meets**	Rating:	**Exceeds**
Comment:	Continuous learning was required extensively during the bootcamp. Since grades in bootcamp were good, this competency in that period is good. But, after joining team, on the programming side, I feel like learning could have been more enhanced.	Comment:	- With a steep learning curve for the past one year, major contribution to my skill development was owing to the self assessing capabilities and reforming strategies to understand things better.

Customer Service

Displays courtesy and sensitivity. Manages difficult or emotional customer situations. Meets commitments. Responds promptly to customer needs. Solicits customer feedback to improve service.

Manager Evaluation		Employee Evaluation	
Rating:	**Exceeds**	Rating:	**Exceeds**
Comment:	She worked on the Chronic Diseases project, which was valuable for CureMD's end-customers—primarily doctors—and was successfully completed for a demonstration at HIMSS.	Comment:	- I understand the project requirements and keep these in check while working on it. No direct customer dealing in my case, but setting project deliverables that satisfy the requirements of application is my priority.

Planning & Organization

Integrates changes smoothly. Plans for additional resources. Prioritizes and plans work activities. Sets goals and objectives. Uses time efficiently. Works in an organized manner.

Manager Evaluation	Employee Evaluation

Rating:	Needs Improvement	Rating:	Needs Improvement
Comment:	Agreed. Plus, she can better organize and plan her work so that deadlines are met.	Comment:	- Need assistance with task performance that are pre-existing in development pipeline - Took some time to get hands on coding in pipelines, due to lack of prior experience

Problem Solving

Develops alternative solutions. Gathers and analyzes information skillfully. Identifies problems in a timely manner. Resolves problems in early stages. Works well in group problem solving situations.

Manager Evaluation		Employee Evaluation	
Rating:	Meets	Rating:	Meets
Comment:	Problem-solving approaches can be enhanced and especially for programming bugs, over-reliance on GPT should be avoided.	Comment:	- Try to mitigate problems during early stages with personal effort before asking for assistance. - I try to gather solutions to hands on problems using online resoursces

Teamwork

Balances team and individual responsibilities. Contributes to building a positive team spirit. Exhibits objectivity and openness to others' views. Gives and welcomes feedback. Puts success of team above own interests.

Manager Evaluation		Employee Evaluation	
Rating:	Meets	Rating:	Exceeds
Comment:	Her dedication to working overtime is truly commendable. However, teamwork also requires open communication, which was initially lacking, but she has since improved in this area	Comment:	- Worked overtime when needed to meet deadlines, especially when delays were due to the need for skill development.

Use of Technology

Adapts to new technologies. Demonstrates required skills. Keeps technical skills up to date. Troubleshoots technological problems. Uses technology to increase productivity.

Manager Evaluation		Employee Evaluation	
Rating:	Meets	Rating:	Meets
Comment:	Her positivity to approach new technology is great. Use of already developed pipelines for the Chronic Diseases Project certainly had some learning curves. Even after extensive time with the pipelines, some simple tasks took much longer than expected (such as when date correction in Wise Data Lake needed to be done).	Comment:	-Continuously adapting to new working environments like vscode, Linux, Ubuntu, cloud services like docker, devops, remote servers and their access through spark and delta lake. - These come with new learning strategies and bug fixing, testing and trials. I've been using these technologies to achieve tasks in an efficient manner.

Section Summary

Manager Evaluation		Employee Evaluation	
Rating:	Meets	Rating:	Meets

Goals

AI/ML Project: Disease Diagnosis Predictions using Lab Results

Devised a way to early diagnosis of diseases based on lab test results that should help take measures to prevent the disease or control its severity

Due Date: 10/16/2023 **Status:** Completed **Completion Date:** 10/16/2023

Category: Development Objective

Supports:

Manager Evaluation

Rating: Meets

Comment: Although their project grades were not great, it was a good first hands-on Machine Learning experience. As we would discover over time, the problem of early prediction of disease from only lab results was extremely challenging; this setting aside the significant data wrangling necessary which they attempted well.

Employee Evaluation

Rating: Meets

Comment:
- Preparation of dataset
- Identifying relevant features
- Train and tune ML models
- Model Evaluations
- Feature Importance's
- UML diagrams

Capstone Project: Chronic Disease Time to Diagnosis & Prediction][Heart disease]

-Developed understanding and treatment strategies for Chronic Ischemic Heart Disease
–Literature Review (approaches and feature selection techniques)
–Methodology (data acquisition, feature selection, data transformation, data balancing and splitting, model selection and training, model evaluation, integration with front-end application)
–UML diagrams (component, class, sequence)
–Dataset Preparation
–Model Selection (Logistic regression, Decision trees, Random forest, Ada boost)
- Different approaches tried to capture the time window for extracting data for both normal and diagnosed patients
–Results:
- 3months: F1 Score =79.79%,
- 6months: F1 score = 80.5%
- 12months: F1 score= 79.5%

– SHapley Additive exPlanations for evaluating model performances and get top important feature explanatio
–Front-end

Due Date: 01/11/2024 **Status:** Completed **Completion Date:** 01/11/2024

Category: Performance Objective, Development Objective

Supports:

Manager Evaluation

Rating: Exceeds

Comment: In this project, they explored and used pretty good techniques to improve their model performances. KNN imputation was a standout, which initially convinced us to consider it as a standard for all chronic disease prediction before we abandoned imputation altogether. Another highlight was their identification of suitable time windows

Employee Evaluation

Rating: Exceeds

Comment:
- Presented a reasonable good method for e arly prediction and time to diagnosis of chronic ischemic heart disease using lab results only
- Important features and global explanations were provided for this disease
- Goals were achieved timely and efficiently

for each of the three classifiers (3, 6, and 12 months) for which they proactively suggested and experimented with multiple options. Overall, their research was thorough and they achieved pretty good results.

Chronic Disease Modelling: 2nd Round of Retraining of models based on doctors feedback

-Developed a thorough understanding of existing pipelines
- Retrained models based on doctors' feedback, primarily refining the feature engineering pipeline. Conducted literature reviews and leveraged domain knowledge to enhance the feature set.
- COPD
- Pipeline improvement efforts

Due Date: **Status:** Completed **Completion Date:**

Category: Performance Objective
Supports:

Manager Evaluation
Rating: **Needs Improvement**
Comment: Retraining of models based on doctor's feedback went smoothly, but pipeline development efforts took time much longer than expected like :
- date correction in Feature Engineering pipeline.
- family disease mapping using IMO

Employee Evaluation
Rating: **Meets**
Comment:

Chronic Disease Modelling: Modelling New Diseases

- Using the same pipelines of preprocessing, feature engineering and modeling, I trained new disease models after studying the available diseases in database:
- Hypothyroidism
- Hyperlipidemia
- 2 stages of retraining were performed, with improvements and feedback from doctor and further literature review

Due Date: **Status:** Completed **Completion Date:** 04/29/2024

Category: Performance Objective
Supports:

Manager Evaluation
Rating: **Meets**
Comment:

Employee Evaluation
Rating: **Meets**
Comment:

Chronic Disease Modelling: Temporal Feature Engineering

– trying different modelling techniques,
- exploring libraries for their explain ability
- lab results inclusion through indirect means

- temporal feature engineering, possible strategies

- Temporal Feature Modelling
- Literature Review and defining Methodology
- Pipeline Implementation
- Modelling (AutoML, SKTime) Research
- Results(best from timeseriessvc giving 72% but took 15 hours on CPU)
- GPU utilization for timeseries modelling to optimize time

Due Date:	Status: In Progress	Completion Date:

Category: Performance Objective

Supports:

Manager Evaluation		Employee Evaluation	
Rating:	**Meets**	Rating:	**Meets**
Comment:	Research potential is good, but improvements can be made in quickly figuring out if another approach needs time investment or not.	Comment:	

Completing Bootcamp courses to develop essential skills for project execution.

Python Object Oriented Programming (OOP): Beginner to Pro:
Python Mega Course: Build 20 Apps
Introduction to Linux
Real Time AI systems design & development
Linear Algebra
Multivariate Calculus
PCA
Probability & Statistics for Machine Learning & Data Science
Introduction to Mathematical thinking
Exploratory Data Analysis for Machine Learning
Supervised Machine Learning: Regression
Supervised Machine Learning: Classification
Unsupervised Machine Learning
Introduction to Machine Learning in Production
Machine Learning Data Lifecycle in Production
Machine Learning Modeling Pipelines in Production
Deploying Machine Learning Models in Production
Introduction to AI
Performance evaluation of AI/ ML systems
AI for Medical Diagnosis
AI for Medical Prognosis
AI For Medical Treatment
Introduction to Deep Learning
Bayesian Methods for Machine Learning (Coursera)
Bayesian Methods for Machine Learning (HSE)
Natural Language Processing (Coursera)
Natural Language Processing (HSE)
Deep Learning Applications for Computer Vision (Coursera)
Deep Learning in Computer Vision (HSE)
Reinforcement learning specialization university of Alberta (coursera)
Practical Reinforcement Learning (HSE)
How to Win a Data Science Competition Learn from Top Kaggle's

How to win a data science competition
Addressing Large Hadron Collider Challenges by Machine Learning
Research Methodology

Due Date: Status: Completed Completion Date:

Category: Development Objective

Supports:

Manager Evaluation

Rating: **Exceeds**

Comment: Her GPA was median among her peers. Completing this extensive bootcamp is great and her learnings really showed in her final capstone project. In her course evaluations, she demonstrated thorough understanding, and an eagerness to learn which are both necessary in her role.

Employee Evaluation

Rating: **Exceeds**

Comment: -Completed this rigorous training bootcamp in 6 months with final cgpa of 3.07.
-gpa depicts learning was efficient and apt me with skills required to uptake coming projects.

OOP and 20 MegaApps Project: Claim Management with ChatGPT Assistance

-Developed a system that utilizes ChatGPT to assist healthcare providers and billers in claim management by reviewing and suggesting improvements to claim forms. The aim was to reduce errors, increase claim acceptance rates, and expedite the claim submission process.

Due Date: 09/04/2023 Status: Completed Completion Date: 09/04/2023

Category: Development Objective

Supports:

Manager Evaluation

Rating: **Meets**

Comment: The project was marred with hurdles of data acquisition, and capacity-building, causing delays. However, the primary metrics for grading were concepts of OOP and system design, where they scored fairly (70%)

Employee Evaluation

Rating: **Meets**

Comment: - Completed all the project deliverables well in time and according to the requirements.
- We established a notion of accuracy of this system which leaves us to conclude that ChatGPT 3.5 was not a reliable assistant for claim acceptance prediction model because of its inconsistent results and words token limit.

Section Summary

Manager Evaluation

Rating: **Meets**

Comment: Ushbah's performance has fluctuated. Although the timeliness and quality of her work need improvement, the overall direction is promising. Research and creative thinking are her strong suits, while she generally struggles with development tasks.

Employee Evaluation

Rating: **Meets**

Comment: - Performs the tasks assigned with full vigilance and asks for assistance where necessar

Questions

List your core job responsibilities.

Manager Evaluation

Response: Agreed. Her research skills are valuable for any team she is part of.

Employee Evaluation

Response:

Research and Development
Develop and implement research strategies to identify and create new approaches for disease prediction models and if there are any existing models try to improve the accuracy with novel techniques

Model Development/Understanding
Use, research and validate machine learning models specifically for predicting various diseases. e.g. searching for new models for multivariate data and models that would leverage GPUs available to us

Data Analysis and Preprocessing
Collect, clean, and preprocess large datasets to ensure high-quality data inputs for the machine learning models. this involves feature engineering, designing pipelines for model training

Algorithm Optimization
Optimize already existing machine learning pipelines and method for performance evaluations for disease prediction.

Models Evaluation
Evaluate model performance of various ML models using appropriate metrics and techniques like accuracy and f1scores, ensuring models meet the required standards.

Collaboration
Work closely with team leads/supervisors and other team members and at times consulting doctors on site to ensure the bust results.

List your most significant accomplishments or contributions since your last review.

Manager Evaluation

Response: This is Ushbah's first review. Her accomplishments and contributions include:

- Completing the bootcamp successfully

Employee Evaluation

Response:

Problem Solving
Identified issues in the ML model deployment with new diseases that were an

- Contribution to Chronic Diseases Project with addition of new diseases and feedback integration. This lead to the successful demonstration at HIMSS. Plus, her work on exploring temporal feature engineering for Chronic Diseases.

obstacle in running the model. found and resolved issues like feeding the right data type for different models like rocket and dummy classifiers and then finding and implementing what sort of datatype would work for models like SVC.
Identified that models that are not multithreaded take a lot of time running on CPU like SVC and came up with solutions to resolve that using GPU rather than CPUs

New Techniques Discovery
Found out and tried implementing the cuML libraries that mirror and work like the sibling sklean or sk time libraries but rather than using CPU they can harness the GPU powers. successful implementation of this would mean significant reduction in time and more robust and efficient models

List your pending goals since your last review. What is your plan to accomplish these goals?

Manager Evaluation		Employee Evaluation	
Response:	Agreed.	Response:	There are no outstanding project goals from last year's targets; however, there is room for improvement in certain areas of skill development. Technical skills, particularly in coding, can be further refined to achieve better outcomes and more optimized workflows.

What do you think are areas of your performance that need improvement?

Manager Evaluation		Employee Evaluation	
Response:	Agreed. Plus, she needs to add "Asking for help" and "Changing approaches" into her arsenal of problem-solving tricks when things are not working well and feeling stuck. Programming and professional discipline also need improvement.	Response:	- Work on skill enhancement further, and improve areas of interest that would help in future projects as well. - Try to implement MLOps workflows for routine tasks - Logging activities related to projects assigned can be done better and more often

What is your plan to improve these areas? How can management support your training and development efforts?

Manager Evaluation		Employee Evaluation	
Response:	**"Taking the time required to construct a mind map/proof of concept before getting hands on with any big task"** That is a good problem solving approach as it saves a lot of time down the road. In addition to this, discussing an approach with another person also works wonders when something complex needs to be done and I as lead always support collaborative efforts. **"Gaining max domain knowledge by watching tutorials, and if available, courses aswell"** As is the working environment in our team, we all need to find a balance between gaining depth and doing practical proof-of-concepts. Before doing spending too much time on domain knowledge, we should figure out quickly if this new approach is worth it. **"Understanding the core concepts and then practically implementing and seeing the difference would go a long way in understanding and in turn improvement in understanding these concepts"** Agreed. Discussions would also help.	Response:	-Taking the time required to construct a mind map/proof of concept before getting hands on with any big task -Gaining max domain knowledge by watching tutorials, and if available, courses aswell. -Understanding the core concepts and then practically implementing and seeing the difference would go a long way in understanding and in turn improvement in understanding these concepts.

State two career goals for the next review period and indicate how you plan to accomplish them.

Manager Evaluation		Employee Evaluation	
Response:	Agreed. Along side these, working on programming (problem solving) and professional grooming should also be prioritized.	Response:	**Advance Expertise in GPU-Accelerated Machine Learning** This feels really important as I can feel that having GPUs of such great abilities we should be utilizing them for our models to ensure the most robust and efficient models, working on it more and deploying it with different datasets in different contexts will certainly help in getting there, where I feel like I can help others and make a difference. **Advance Expertise in other Areas of interest** If provided the opportunity, work on MAS/ LLMS, for modeling medical predictions and outcomes, which may replace current ML workflows, or assist, or cover blind spots. I don't have prior project experience with LLMS, but willing to learn about it and dedicate my efforts in subject of interest. **Expand Knowledge in AI Ethics and**

Compliance
As this is a hot topic learning more about ethics in AI, feels really important as bias in data or model could result in false positives. working in healthcare AI ethics is critical and crucial as any misleading data or analysis could result in negative consequences

Enhance Efficiency through Automation and Communication
Streamline and automate routine tasks in the model development pipeline to improve overall efficiency and reduce manual workload. Identify team members that could help with certain tasks to improve efficiency and save time or raise issues with line managers/supervisors well in time.

Section Summary

Manager Evaluation

Comment: As an AI engineer, continuously learning and improving is a necessity. This year's coursework and projects hopefully gave her a learning pathway for a life-long learner. Discussions with colleagues can help her a lot in learning and solving complex problems.

Employee Evaluation

Comment: As an AI trainee for the first 6 months and then associate engineer for next 6, I have developed as an software engineer and as a professional. Working at CureMD has only boosted my potential, and fueled my thrive towards this field. Through my journey of education and career, CureMD has contributed essentially to my development and I plan to keep working towards achieving my ultimate potential, for my own and company's benefit.