Project Report

On My Internship

Report Submitted

In Partial Fulfilment of

BACHELOR OF COMPUTER APPLICATIONS (BCA)

Submitted by:

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(Roll No: 24/SCA/BCA/001)

Under the Supervision of:

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Faridabad – 121001

June 2025

Declaration

I do hereby declare that this project work entitled “My Internship Report” submitted by me for the partial fulfilment of the requirement for the award of BACHELOR OF COMPUTER APPLICATIONS (BCA) is a record of my own work. The report embodies the findings based on my study and observation and has not been submitted earlier for the award of any degree or diploma to any Institute or University.

SIGNATURE

Name: AMBUJ YADAV

Roll No: 24/SCA/BCA/001

Date:-15 AUGUST 2025

Certificate from the Guide

This is to certify that the project report entitled “My Internship Report” submitted in partial fulfilment of the degree of BACHELOR OF COMPUTER APPLICATIONS (BCA) to Manav Rachna International Institute of Research and Studies, Faridabad is carried out by Mr. AMBUJ YADAV (Roll No: 24/SCA/BCA/001) under my guidance.

Signature of the Guide Name:

Dr. Ritu Sachdeva

Head of Department Name:

Prof. (Dr.) Suhail Javed Qureshi

Date:-15 AUGUST 2025

Acknowledgement

I gratefully acknowledge the assistance, cooperation, guidance and clarification provided by Dr. Ritu Sachdeva during the development of this internship report. My extreme gratitude to Dr. Sjio Joseph, Associate Professor who guided me throughout the project. Without his willing disposition, spirit of accommodation, timely clarification and above all faith in me, this project could not have been completed in due time.

I would like to extend my sincere gratitude to Prof. (Dr.) Suhail Javed Qureshi – HOD, Prof. (Dr.) Rashmi Agrawal – Associate Dean and Prof. (Dr.) Brijesh Kumar – Dean for their valuable teachings and advice. I want to thank all the department faculty members and non-teaching staff for their cooperation and support. This opportunity is a big milestone in my career development. I will strive to use the gained skills and knowledge in the best possible way and continue working on their improvement to attain my career objectives.

Index (Table of Contents)

Introduction

About the Organization:

CODSOFT is an IT Services and Consultancy company founded in 2022 and based in Kolkata, India. They specialize in providing innovative solutions and offer various internship programs in fields like Web Development, App Development, and Data Science. CODSOFT focuses on practical, Hands-on learning experiences for interns, guiding them through real-world projects under the mentorship of industry experts. They are passionate about technology and believe in the power of software to transform the world. The Internship program is just one of the ways in which we are investing in the future of the industry. They are unfunded company with a strong emphasis on practical experience. CODSOFT aims to equip individuals with the skills and knowledge needed to succeed in their chosen tech fields.

Aims and Objective:-

The Primary Objective of this internship was to enhance the Artificial Intelligence by engaging in four structured projects, each reflecting a real-world problem. The Internship aimed to improve knowledge of Python Programming.

Manpower:-

The Internship program was overseen by Dr. Ritu Sachdeva, who guided the progress and quality of each task. Interns were grouped under project mentors and communication was maintained through online platforms including WhatsApp and GitHub.

System Study

Existing System:-

In traditional learning and communication systems, users often rely on static platforms or manual setups. Portfolio showcases are done manually through PDFs or offline resumes. Communication to a Chat Bot, TIC TAC TOE, Image Captioning, Face Detection, and Recommendation Movie System.

Proposed System:-

The new system includes five modern addresses these follows:-

1. **Simple Based ChatBot AI**
2. **TIC TAE TOE AI**
3. **Image Captioning AI**
4. **Recommendation Movie System**
5. **Face Detection AI**

These systems are user-friendly, dynamic, and responsiveness

Feasibility Study

Technical Feasibility:-

The Project used for the Artificial Intelligence is Python, which are supported on all major platforms. The Developer was already familiar with these technologies, ensuring smooth development.

Economic Feasibility:-

All Development was done using free and open-source tools. No additional costs were incurred for licenses, hosting, or deployment. Thus, the project is highly economical.

Behavioural Feasibility:-

The Python is very simple and easy to use, based on the artificial intelligence. Positive feedback was received during testing and peer reviews.

Project Monitoring System

Gantt chart (Weekly Plan):-

- **Week 1:- Talking to Chat Bot**
- **Week 2:- TIC TAC TOE**
- **Week 3:- Image Captioning**
- **Week 4:- Recommendation Movie System**
- **Week 5:- Face Detection**

Progress was tracked through GitHub commits and milestone checklists.

SYSTEM ANALYSIS

Requirement Specification:-

We are required for this project is Visual Studio Code. In Visual Studio Code I have used python for this. The purpose of this task is to chat to the bot, making a game of TIC TAC TOE, image captioning, Recommendation Movie System and Face Detection.

This enhances like how the Artificial Intelligence improving efficiency and manual errors.

Task 1

Simple Rule Based Chatbot

Project Title: - Talking to a chatbot

Developed By: - Ambuj Yadav

GitHub Repository: -
https://github.com/sergeantcross0007/CODSOFT-TASKS-Artificial-intelligence-/blob/e430ccb0e512e6b170cfc43f7baddc6467ba2bd0/TALKING%20TO%20CHAT%20BOT%20(TASK%201).py

PROJECT OVERVIEW:-

This project is a Simple Based Talk to a Chatbot, like for example we are using Google Assistant so we talk to a bot.

It is fully responsive and fast. The Project focuses on Python

Making it a strong demonstration of interactive and development skills.

Testing and Output Test Scenario:-

1. Running on the Visual Studio Code

2. The ChatBot will answer your question

3. First chatbot will say “Hello! I am your virtual assistant. Type ‘bye’ to exit. I will say “Hello”.

4. Chatbot will say “Hi there! How can I help you? I say yes

5. Chatbot will say “I’m not sure how to respond that. Try asking something else.”

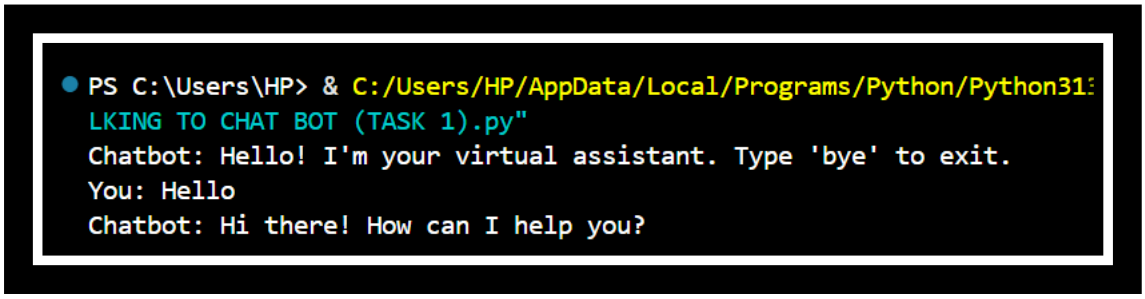
6. I will ask “what is your name?”

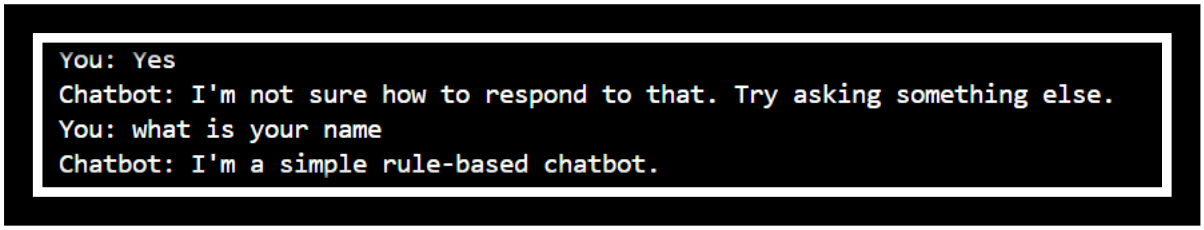
7. Chatbot will say that “I’m a Simple-rule based ChatBot”

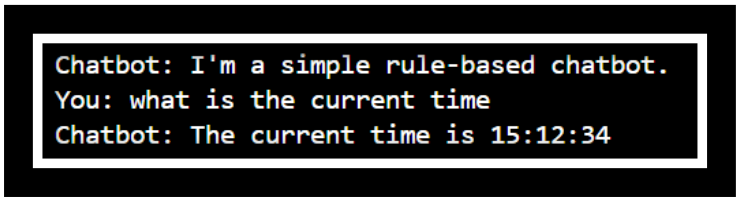
8. The next question I will say that “what is the current time” then the chatbot say the present time.

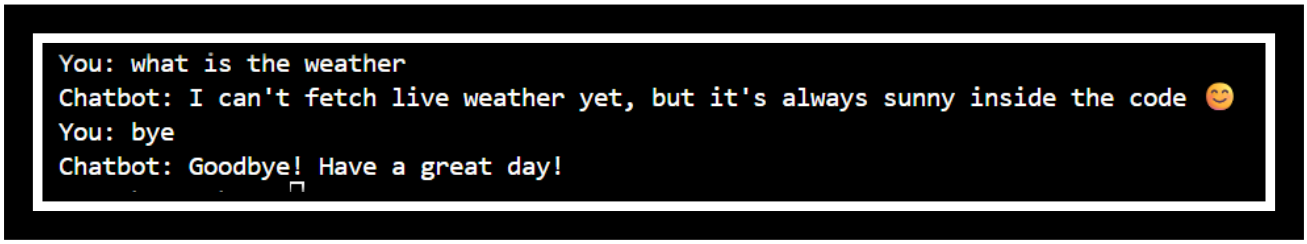
9. If you type “bye” then the chatbot say “Goodbye have a Great Day”.

SCREENSHOTS:-









Learning & Experience:-

This project helped strengthen my knowledge that to interact with a chatbot and reflect on the learning experience, communication style, usefulness and any challenges faced during the conservation. This project was to understand how chatbot process user queries, provide information and stimulate a human-like conservation.

Task 2

TIC TAC TOE

Project Title: - Talking to a Chatbot

Developed By: - Ambuj Yadav

GitHub Repository: -
https://github.com/sergeantcross0007/CODSOFT-TASKS-Artificial-intelligence-/blob/e430ccb0e512e6b170cfc43f7baddc6467ba2bd0/TIC%20TAC%20TOE%20AI%20(TASK%202).py

PROJECT OVERVIEW:-

During the internship, I developed a game name as TIC TAC TOE using Python and also minimal Algorithm. It is a type of artificial intelligence that can play a game of TIC TAC TOE. It uses a decision-making algorithm called Minimax to determine the best possible move in any given game state.

How it works in TIC TAC TOE:-

1. The AI looks ahead at all possible it could make.
2. For each possible move, it simulates how the game would progress if the opponent also plays optimally.
3. It assigns a score to each final outcome:-
    - **Win:- +1**
    - **Loss:- -1**
    - **Draw:- 0**
4. The AI chooses the move that maximizes its minimum guaranteed score.

Testing and Output Test Scenario:-

1. Running on the VS code

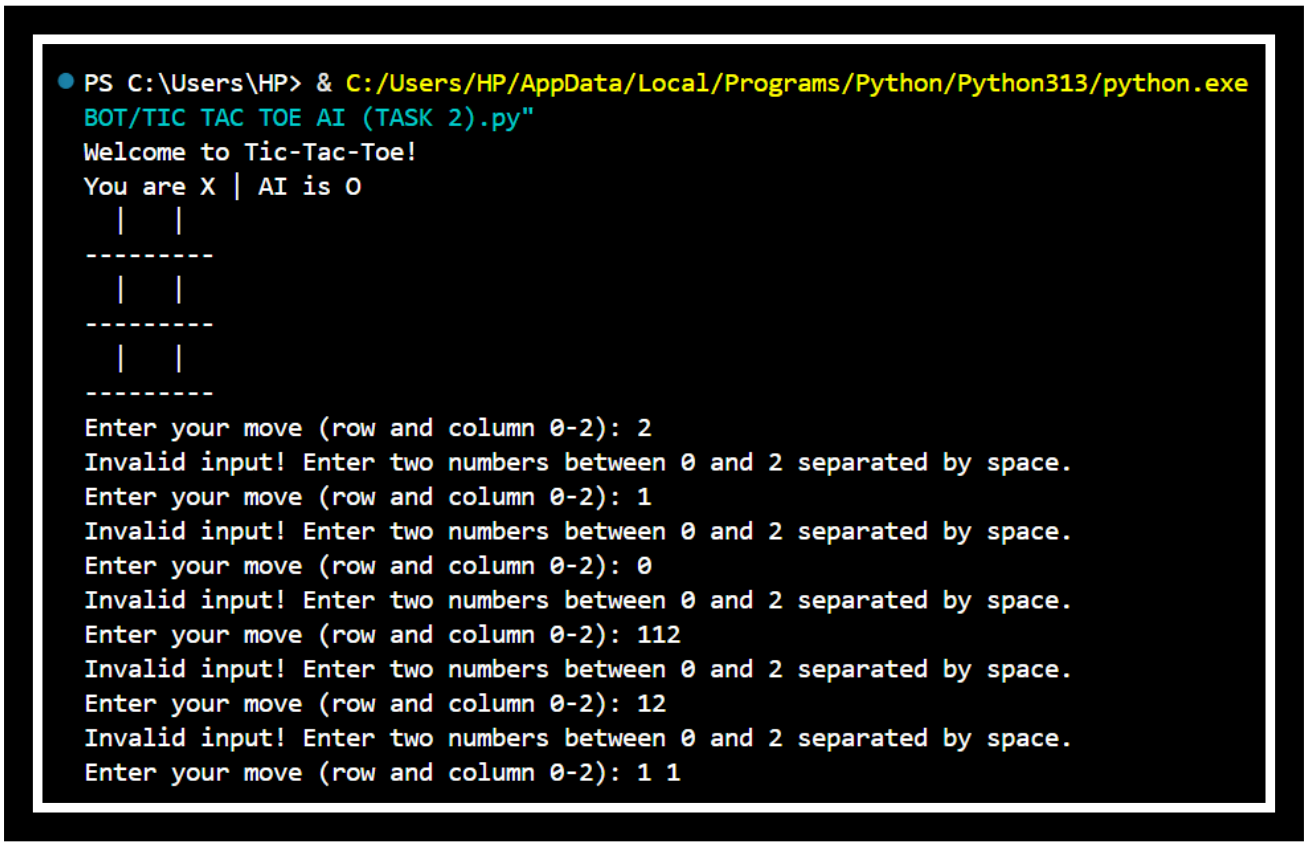
2. Output code show and shows Enter your move (row and column 0-2)

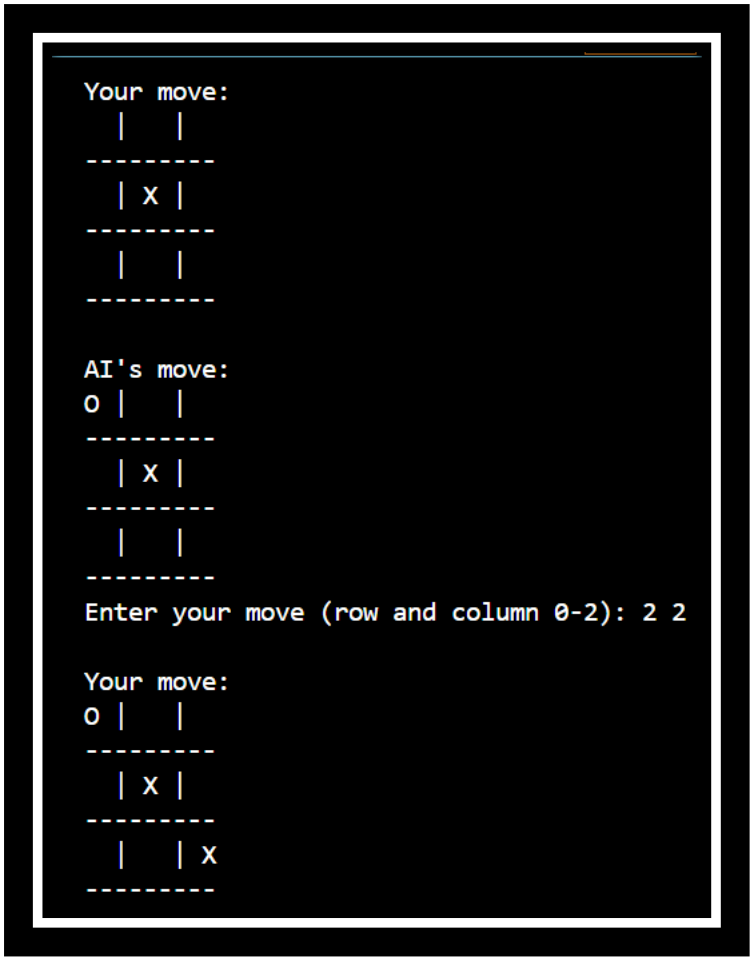
3. If I write 0 2 then it will say Cell is taken!

4. If I write 2 then it will say Invalid input Enter two numbers between 0 and 2 separated by space.

5. As I said in above it will assign the score as win, lose and draw

SCREENSHOTS:-




Your move:
| |

| X |

| |

AI's move:
O | |

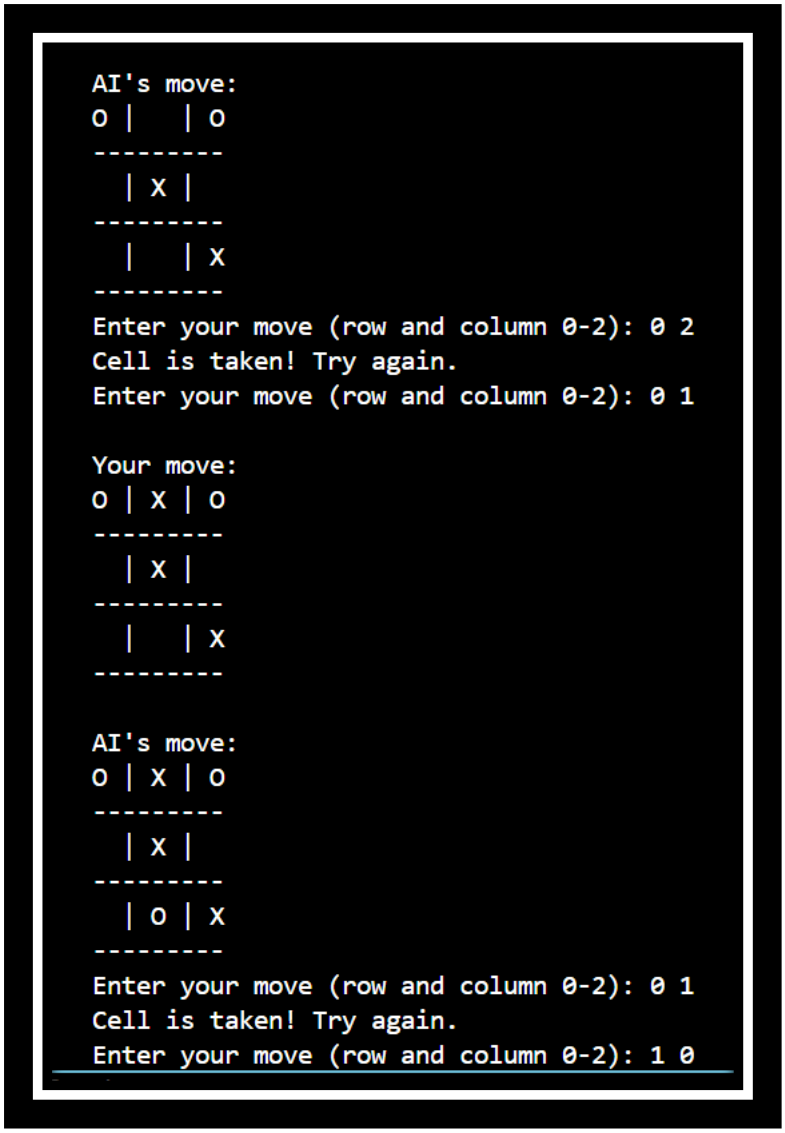
| X |

| |

Enter your move (row and column 0-2): 2 2
Your move:
O | |

| X |

| | X


AI's move:
O | | O

  | X |

  | | X

Enter your move (row and column 0-2): 0 2
Cell is taken! Try again.
Enter your move (row and column 0-2): 0 1
Your move:
O | X | O

  | X |

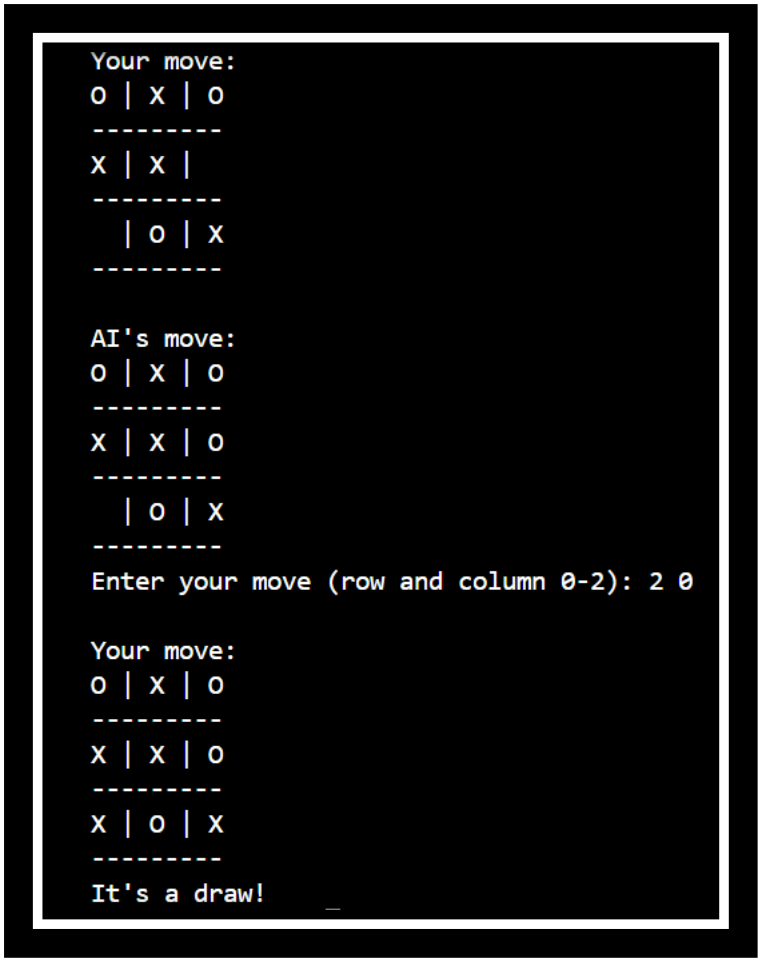
  | | X

AI's move:
O | X | O

  | X |

  | O | X

Enter your move (row and column 0-2): 0 1
Cell is taken! Try again.
Enter your move (row and column 0-2): 1 0



Learning & Experience:-

The project on AI, I developed a TIC TAC TOE GAME where computer opponent uses the Minimax Algorithm to make decisions. This project helped me understand how AI can stimulate human decision-making and play games perfectly.

As I tell in the above the Minimax is based on decision trees and recursion. It evaluates all possible moves, assuming both players (AL and ME) optimally.

Task 3

IMAGE CAPTIONING AI

Project Title: - Image Captioning

Developed By: - Ambuj Yadav

GitHub Repository: - https://github.com/sergeantcross0007/CODSOFT-TASKS-Artificial-intelligence-/blob/3210af5b192f99b132aacd0cefefecca678e71cf/IMAGE%20CAPTIONING%20AI%20(TASK%203).py

PROJECT OVERVIEW:-

During this internship, I developed an image captioning. Image captioning is which we are writing the caption on the image.

Following things that I used for Image Captioning:-

1. **Transformers: -** Transformers (the Python library)
   This is a Python library from Hugging Face that offers Pre-trained models of transformers such as GPT. Simple utilities for loading and utilizing those models. Text, image, audio, and multi-modal task APIs.

2. **Blip Processor: -** Blip Processor is a support tool that formats images and text in a way that can be understood and utilized by a BLIP model. Conceptualize it as a translator between raw input data (such as an image or a query) and the BLIP model (which requires the input in a certain format)

3. **Tkinter:-** Tkinter is a python library used for the games making more effective (means Graphical User Interface)

4. **Torch: -** Torch is an open-source library for machine learning and framework. Torch is an open source machine learning library for building deep neural networks and is implemented in Lua scripting language.

5. **ImageTK: -** ImageTK is which we can add image for caption on it.

Testing and Output Test Scenario:-

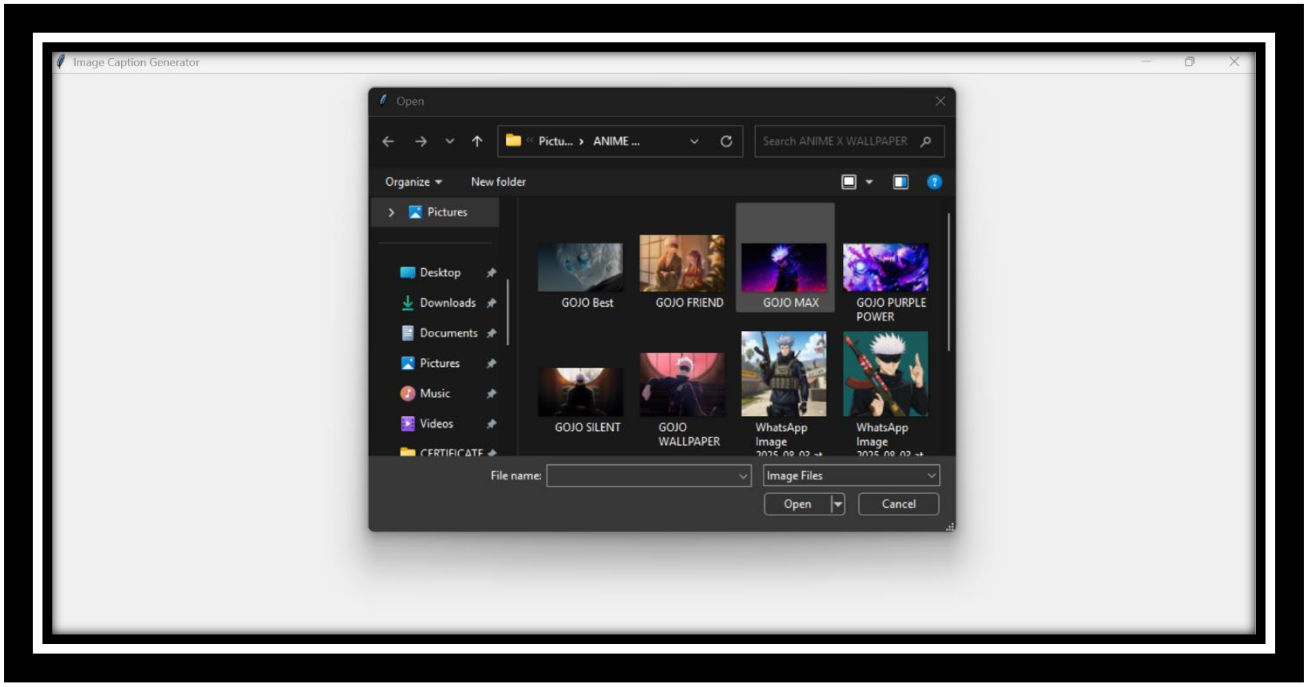
1. Running on the VS code

2. Output code show the image caption generator it will say that “Upload an image to generate a caption”.

3. If I click on the upload image then it will go to the pictures folder for selecting the image for the caption.

4. And last not least uploading the image then the caption will say " A man with a white hair and a black jacket".

SCREENSHOTS:-



Learning & Experience:-

The project on AI, I developed an Image Captioning. This project understands me how can we select the image and AI tell the caption like how the image is this. As I tell you above I have in the above I have used Transformers, Tkinter, Torch, Blip Processor and ImageTK.

Task 4

RECOMMENDATION MOVIE SYSTEM

Project Title: - Recommendation Movie System

Developed By: - Ambuj Yadav

GitHub Repository: - https://github.com/sergeantcross0007/CODSOFT-TASKS-Artificial-intelligence-/blob/3210af5b192f99b132aacd0cefefecca678e71cf/RECOMENDATION%20MOVIE%20SYSTEM%20USING%20PYTHON%20AI%20(TASK%204).py

PROJECT OVERVIEW:-

During this internship, I developed a Recommendation Movie System. In this we have the content based filtering and collaborative filtering. In 2 things we have the Recommendation Movie System.

Following things that I used for Recommendation Movie System:-

1. **Pandas as PD: -** Pandas in Python is a library which is a powerful tool used for data analysis and also for the recommendation. The PD line assigns the library a

shorter alias (PD) to make it more convenient to use in your code.

2. **TfidVectorizer: -** TfidVectorizer is a Python Class. It comes into play when transforming a list of raw text documents to a matrix of TfidVectorizer features.

3. **Cosine Similarity: -** Cosine similarity is one of the most commonly used measures in Python movie recommendation systems, especially under content-based filtering methods. It measures the similarity between two items (movies) or two users by calculating the cosine of the angle between their corresponding feature vectors in a multi-dimensional space.

Testing and Output Test Scenario:-

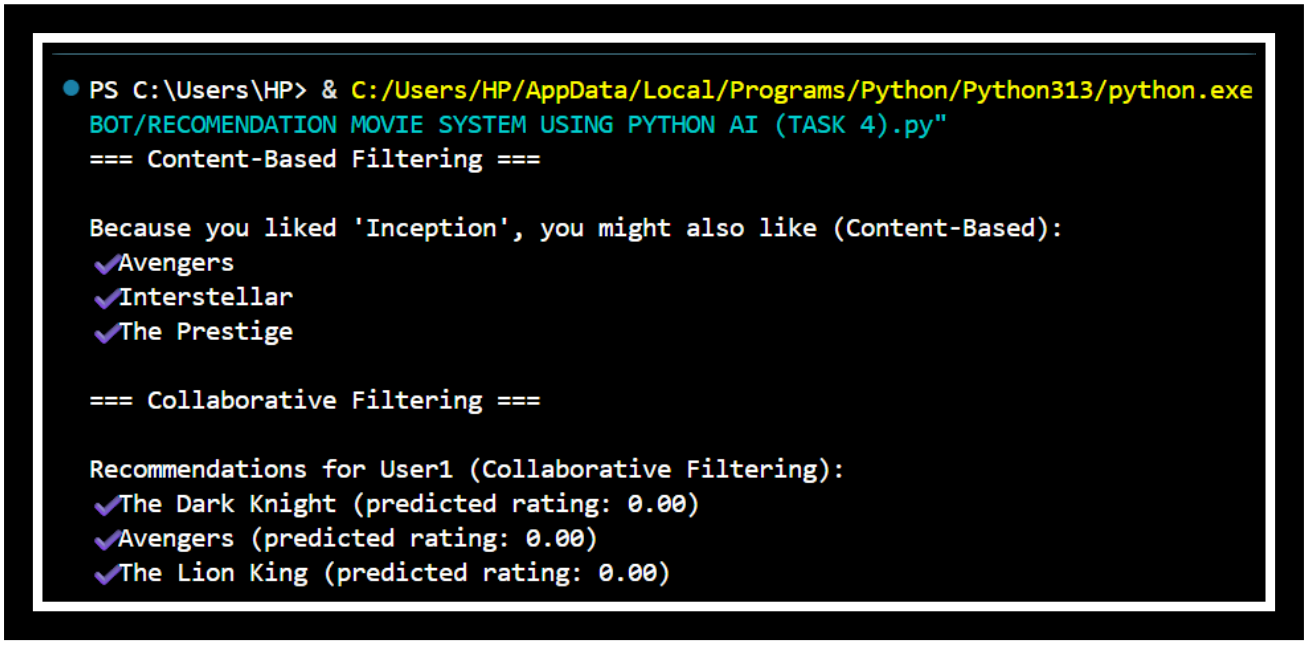
1. Running on the VS code

2. Output code show the Content-Based Filtering

3. The next will say “Because you liked ‘Inception’ you might also be like (Content-Based), then it will show the 3 movie names

4. The next one will show the collaborative filtering it will say that recommendation for User1 (Collaborative Filtering) then it will show 3 movies with their ratings.

SCREENSHOTS:-



Learning & Experience:- During the internship, In movie recommendation systems, "learning" is the machine learning algorithms that scan for patterns in user data and movie attributes and make preference predictions, while "experience" is the improved user experience due to these personalized, pertinent, and timely film suggestions that save search time and enhance interaction. The most important methods are Collaborative Filtering, which takes advantage of user behaviour patterns such as views and ratings, and Content-Based Filtering, which examines movie features such as plot, cast, and genre. Integrating these methods, or employing sophisticated methods such as Deep Learning and

Sentiment Analysis, enhances recommendation accuracy and user satisfaction further.

Task 5

FACE DETECTION AI

Project Title: - Face Detection AI

Developed By: - Ambuj Yadav

GitHub Repository: - https://github.com/sergeantcross0007/CODSOFT-TASKS-Artificial-intelligence-/blob/3210af5b192f99b132aacd0cefefecca678e71cf/FACE%20DETECTION%20AI%20(TASK%205).py

PROJECT OVERVIEW: - During the Internship, I have developed the face detection Using AI. In this I have used my webcam for the face detection. Only one thing that I use for the face detection is CV2. CV2 module is the OpenCV library's Python interface, which is a popular library for machine learning and computer vision operations, providing functions like video and image loading, manipulation, feature detection, object tracking, and face recognition for applications in surveillance, robotics, and augmented reality.

SCREENSHOTS:-

Software that I use for this face detection:-

1. **Visual Studio Code**

2. **Importing CV2**

3. **Face cascade**

4. **Video capture**

Testing and Output Test Scenario:-

1. Running on the VS code
2. Output code show the webcam that the detecting the face
3. The green square lines can see in the above you can move
4. If you press Q (alphabet) button then it will close the Face detection.

Learning & Experience:- During the Internship In face detection projects, you learn basic concepts of computer vision and machine learning, learn how to use libraries such as OpenCV and work on data pre-processing, training models, and deploying real-world applications like security, attendance systems, and image filtering. Major stages are face detection (face location), face alignment (face normalization), and feature extraction with deep learning (face embedding's) to facilitate recognition.

BIBLOGRAPHY

1. https://github.com/sergeantcross0007/CODSOFT-TASKS-Artificial-intelligence-/blob/3210af5b192f99b132aacd0cefefecca678e71cf/TALKING%20TO%20CHAT%20BOT%20(TASK%201).py

2. https://github.com/sergeantcross0007/CODSOFT-TASKS-Artificial-intelligence-/blob/3210af5b192f99b132aacd0cefefecca678e71cf/TIC%20TAC%20TOE%20AI%20(TASK%202).py

3. https://github.com/sergeantcross0007/CODSOFT-TASKS-Artificial-intelligence-/blob/3210af5b192f99b132aacd0cefefecca678e71cf/IMAGE%20CAPTIONING%20AI%20(TASK%203).py

4. https://github.com/sergeantcross0007/CODSOFT-TASKS-Artificial-intelligence-/blob/3210af5b192f99b132aacd0cefefecca678e71cf/RECOMENDATION%20MOVIE%20SYSTEM%20USING%20PYTHON%20AI%20(TASK%204).py

5. https://github.com/sergeantcross0007/CODSOFT-TASKS-Artificial-intelligence-/blob/3210af5b192f99b132aacd0cefefecca678e71cf/FACE%20DETECTION%20AI%20(TASK%205).py