Development of a Virtual Assistant and it's Encryption/Decryption using Python

Internship Report

Submitted for the partial fulfilment of the degree of

Bachelor of Technology

In

Mathematics & Computing

Submitted By

Muskan Rathore

0901MC201043

UNDER THE SUPERVISION AND GUIDANCE OF

Dr. Atul Kumar Ray

Assistant Professor

Department of Engineering Mathematics and Computing

माधव प्रौद्योगिकी एवं गवज्ञान संस्थान, ग्वागियर (म.प्र.), भारत

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR (M.P.), INDIA

Deemed to be University

NAAC ACCREDITED WITH A++ GRADE

January-June 2024

DECLARATION BY THE CANDIDATE

I hereby declare that the work entitled **Development of a Virtual Assistant and it's Encryption/Decryption using Python** is my work, conducted under the supervision of **Dr. Atul Kumar Ray, Assistant Professor,** during the session Jan- May 2024. The report submitted by me is a record of bonafide work carried out by me.

I further declare that the work reported in this report has not been submitted and will not be submitted, either in part or in full, for the award of any other degree or diploma in this institute or any other institute or university.

Muskan Rathore
0901MC201043

Date: 21/05/24
Place: Gwalior

This is to certify that the above statement made by the candidates is correct to the best of my knowledge and belief.

Guided By:

Dr. Atul Kumar Ray
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Departmental Project Coordinator

21/5/24

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Approved by HoD

Dr. Vikas Shinde
Professor & Head
Department of Engineering
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MITS, Gwalior

PLAGIARISM CHECK CERTIFICATE

This is to certify that I/we, a student of B.Tech. in **Mathematics & Computing** have checked my complete report entitled **Development of a Virtual Assistant and it's Encryption/Decryption using Python** for similarity/plagiarism using the "Turnitin" software available in the institute.

This is to certify that the similarity in my report is found to be **17%** which is within the specified limit (20%).

The full plagiarism report along with the summary is enclosed.

Muskan Rathore

0901MC201043

Checked & Approved By:

Dr. Jitendra Kumar
Associate Professor
Department of Engineering
Mathematics & Computing
MITS, Gwalior

EXECUTIVE SUMMARY (FOR INTERNSHIP)/

ABSTRACT (FOR PROJECTS)

This internship report provides a comprehensive overview of the Python Software Development Project. The internship focuses on creating and maintaining Python-based software applications. The report provides an outline of the project's aims and scope, emphasizing the importance of developing the software and its expected capabilities. It then delves into the methodology, outlining the tools, technologies, and frameworks used throughout the development process.

The key steps of the software development lifecycle, such as requirement analysis, design, development and implementation, testing, deployment, and maintenance, are thoroughly examined. The emphasis is on using Python's features to increase code readability, maintainability, and performance.

Furthermore, the report discusses the obstacles faced during the internship and the tactics used to overcome them. This includes concerns with performance optimization, program troubleshooting and debugging, and user experience refinement.

The internship gave me important practical experience in Python software development, allowing me to use my academic skills in a real-world situation.

In conclusion, the Python Software Development internship was a rewarding and educational experience that provided invaluable insights into the complexities of software development

ACKNOWLEDGEMENT

I am deeply grateful to **Dr. R. K. Pandit**, the Director of the institute, and **Dr. Manjaree Pandit**, the Dean of Academics, for their invaluable support throughout this project. I convey my heartfelt gratitude to my mentor and supervisor, **Dr. Atul Kumar Ray**, Assistant Professor in the Department of Engineering Mathematics & Computing, for his expert guidance and constant encouragement. His support and insights were crucial for the successful completion of this project. I also wish to thank the faculty members of the Department of Engineering Mathematics & Computing for their constructive feedback and valuable suggestions. Their guidance greatly facilitated my work.

Finally, I would like to express my profound appreciation to my friends for their unwavering support and assistance during the challenging moments of this project. Their encouragement and help were instrumental in overcoming various difficulties.

Muskan Rathore

0901MC201043

CERTIFICATE OF INTERNSHIP

IndVibe Infotech Pvt Ltd

Iso 9001:2015 certified company

INTERNSHIP COMPLETION CERTIFICATE

Date 11-May, 2024

This is to certify that **Miss. Muskan Rathore** is a student of B.tech specialization in Mathematics and Computing from Madhav Institute of technology and science, Gwalior (M.P.) has been successfully completed the 04 months (10-January, 2024 to 10-may, 2024) Internship Programme in **Python Software Development,** at IndVibe InfoTech Pvt Ltd.

Wishing you a great future in the IT Industry and looking forward to seeing you at IndVibe InfoTech Pvt Ltd.

Warm Regards

Center Head

IndVibe InfoTech Pvt Ltd

302 B, 3rd Floor Rajat Complex,18 Kibey Compound Near Madhumilan Square, Indore
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CONTENT

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ACRONYMS

These are some of the acronyms used in the project.

1. GUI: Graphic User Interface
2. HTML: Hyper Text Markup Language
3. CSS: Cascading Style Sheets
4. CRUD: Create, Read, Update, Delete
5. Tkinter: Tk Interface

CHAPTER 1: INTRODUCTION

The INDVIBE INFOTECH PVT LTD Company has made a reputation for itself as a pioneer in offering top-notch technology services and solutions that consistently follow the most recent technological developments and internationally accepted standards. For your business, we facilitate innovation, quick prototyping, and large-scale deployment. To increase organizations' online success, we offer end-to-end web and mobile app development along with modern technologies like Python, IoT, AR/VR, AI, and web technology. As a premier custom software development firm, we aim to close the gap between your organization and the desired levels of success by advancing it to new heights.

CHAPTER 2:

Python: Python is an interpreted, high-level programming language that is renowned for its ease of use and readability. It is compatible with procedural, object-oriented, and functional programming paradigms, among others. Because of its adaptability, Python may be used for a lot of different things, such as automation, scientific computing, web development, data analysis, and artificial intelligence.

SDLC: SDLC stands for Software Development Life Cycle. It is a structured process used by software development teams to plan, design, build, test, deploy, and maintain software systems. Designed, Developed, Test (SDLC) is an organized procedure for creating high-caliber software. SDLC encompasses a series of phases or stages that guide the development process from conception to completion.

HTML: HTML allows web developers to create web pages with text, images, links, and multimedia content, and to organize and format this content using various elements and attributes.

CSS: CSS refers to Cascading Style Sheets. It allows web developers to control the layout, appearance, and formatting of web pages, including elements such as text, colors, fonts, spacing, and positioning. Because it gives web developers the means to make webpages that are aesthetically pleasing, easily navigable, and responsive, CSS is essential to modern web development.

CHAPTER3:

Python Libraries:

Django: Django is an open-source framework used for web application backend development. Django promotes component reuse through its DRY (Don't Repeat Yourself) principle and includes built-in functionalities such as database connections, login systems, and CRUD (Create, Read, Update, Delete) operations.

Tkinter: The Tk interface, often referred to as Tkinter in Python, is a standard graphical user interface (GUI) toolkit. It allows developers to create window-based applications with components like buttons, labels, and text boxes.

Open CV: Open Source Computer Vision Library, is an open-source computer vision and machine learning software library. It was first created by Intel and is crucial to real-time operation, which is crucial for modern systems.

PyGame: Video games are made with the PyGame library. Many modules for managing mouse inputs, creating images, playing music, and other tasks are included in this package. Client-side programs that can be wrapped into independent executables are also made with it.

CHAPTER4:

Project1.(Virtual Assistant Using Python)

Virtual assistance refers to the service provided by a remote assistant who performs various tasks, typically administrative, technical, or creative, for clients.

Modules Needed:

pyttsx3:pyttsx3isaPythonlibrarythat provides text-to-speech functionality. Developer scan use it to translate written content into spoken language. Unlike some other text-to-speech libraries, pyttsx3 works offline and provides support for multiple text-to-speech engines.

```
pip install pyttsx3
```

Speech recognition: This technology lets us translate sounds into text so that it may be processed further.

```
pip install SpeechRecognition
```

Web browser: It offers a high-level interface that enables users to view content hosted on the Web. It provides a graphical interface for users to view web pages, interact with multimedia content, and access various online services.

```
pip install webbrowser
```

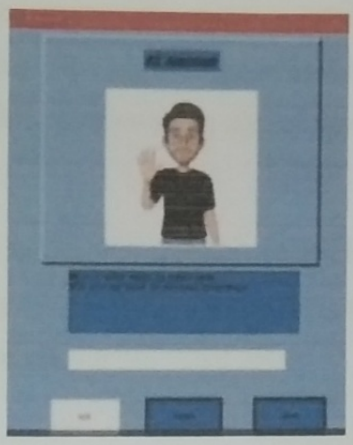
Wikipedia: A wide range of information is retrieved from the Wikipedia website.

```
pip install wikipedia
```

CHAPTER5:

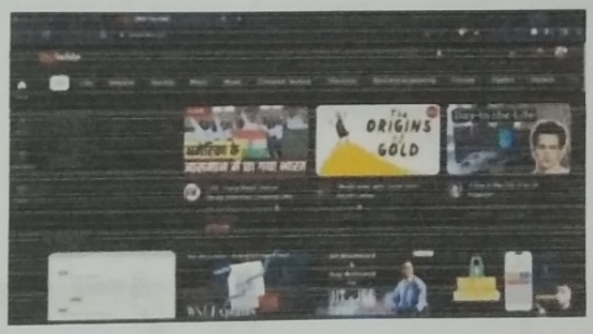
Output:

Virtual Assistant

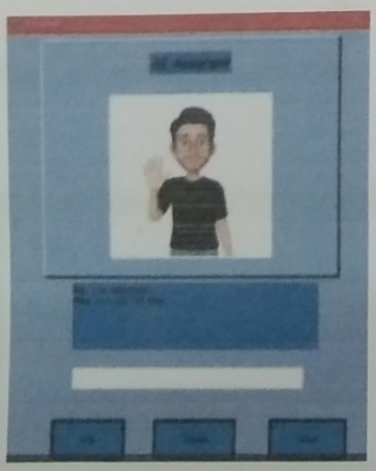


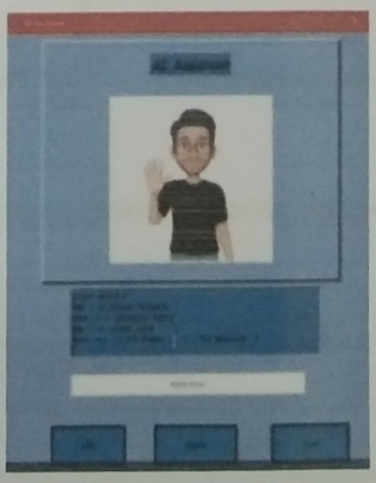
Asking Question

Giving Command (Speak)



Following Command





Giving Command (Writing)

CHAPTER6:

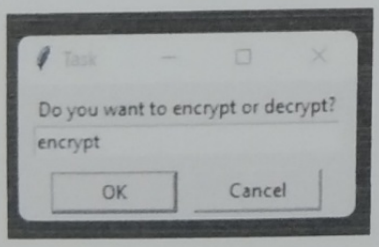
Project2.(Encryption & Decryption Using Python)

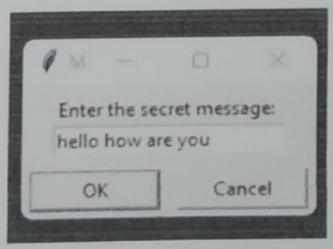
Encryption: Encryption is the process of converting information or data into a coded format to prevent unauthorized access. This transformation uses an algorithm and a key, making the original information unreadable to anyone who doesn't have the decryption key.

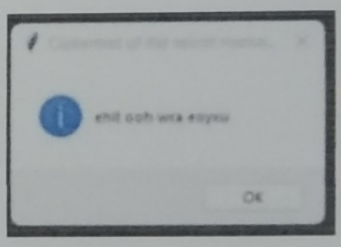
Decryption: Decryption is the reverse process, where the coded information is converted back to its original, readable format. This process also uses a key, which should match the one used for encryption, to unlock the encrypted data.

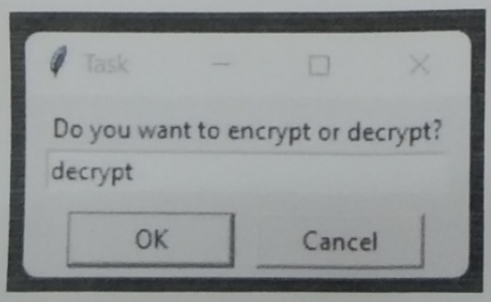
Tkinter: The Tk interface, often referred to as Tkinter in Python, is a standard graphical user interface (GUI) toolkit. It allows developers to create window-based applications with components like buttons, labels, and text boxes.

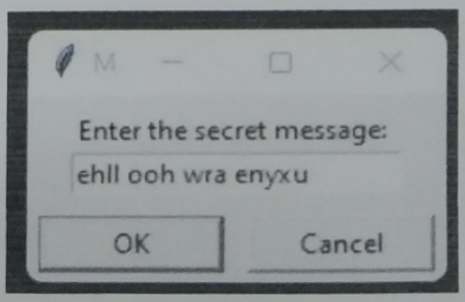
Output:











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Summary

ANNEXURE-2

DAILY DIARY

Week	Duration Start date – End date (DD/MM/YY) - (DD/MM/YY)	Progress of Internship/ Project
Week - 1	10/01/2024 – 16/01/2024	Introduction to Python Language
Week - 2	17/01/2024 – 23/01/2024	Basics of Python with Visual Studio setup
Week - 3	24/01/2024 – 31/01/2024	Basic Concepts of SDLC
Week - 4	01/02/2024 – 07/02/2024	Introduction to Python Libraries
Week - 5	08/02/2024 – 14/02/2024	Web Technologies (HTML, CSS, etc)
Week - 6	15/02/2024 – 21/02/2024	Python Installation
Week - 7	22/02/2024 – 28/02/2024	First Project (Virtual Assistant using Python)
Week - 8	29/02/2024 – 07/03/2024	GUI (Graphical User Interface) using Tkinter
Week - 9	08/03/2024 – 14/03/2024	Implementation (Python Language)
Week - 10	15/03/2024 – 21/03/2024	Testing
Week - 11	22/03/2024 – 28/03/2024	Deployment
Week - 12	29/03/2024 – 04/04/2024	Second Project (Encryption & Decryption)
Week - 13	05/04/2024 – 11/04/2024	Interface Create
Week - 14	12/04/2024 – 18/04/2024	Implementation
Week - 15	19/04/2024 – 25/04/2024	Testing & Deployment
Week - 16	26/04/2024 – 02/05/2024	Internship Ending Sessions with Doubt Clearance

ANNEXURE-3A

MPR-1

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FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY/COMPANY MENTOR

Name of Student	Muskan Rathore		Enrollment No.	0901MC201043	
Department	Mathematics & Computing		Sem.	8 (session: Jan-June 24)	
Industry/Organization	IndVibe Infotech		Date/Duration	30/01/2024 - 10/05/2024	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/Timely completion of assigned work					✓
Learning capacity/Knowledge up gradation				✓	
Performance/Quality of work				✓	
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic					
OVERALL GRADE (Any one)	POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT				
Name of Industry/Company Mentor	Mr. Vishal Verma				
Signature of Industry/ Company Mentor	V.Verma				

Receiving Date	19/03/24	**Name of Faculty Mentor**	Dr. Atul Kumar Ray	**Sign**	

ANNEXURE-3B

MPR-2

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
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FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY/COMPANY MENTOR

Name of Student	Muskan Rathore		Enrollment No.	0901MC201043	
Department	Mathematics & Computing		Sem.	8 (session: Jan-June 24)	
Industry/Organization	IndVibe Infotech		Date/Duration	10.01.2024 - 10.05.2024	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/Timely completion of assigned work				✓	
Learning capacity/Knowledge up gradation				✓	
Performance/Quality of work				✓	
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic					
OVERALL GRADE (Any one)	POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT				
Name of Industry/Company Mentor	Mr. Vishal Verma				
Signature of Industry/ Company Mentor	V.Verma				

Receiving Date	19/05/24	**Name of Faculty Mentor**	Dr. Atul Kumar Ray	**Sign**	Atul

ANNEXURE-3C

MPR-3

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
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FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY/COMPANY MENTOR

Name of Student	Muskan Rathore		Enrollment No.	0901MC201043	
Department	Mathematics & Computing		Sem.	8 (session: Jan-June 24)	
Industry/Organization	IndVibe Infotech		Date/Duration	10/04/2024 - 10/05/2024	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/Timely completion of assigned work					✓
Learning capacity/Knowledge up gradation					✓
Performance/Quality of work				✓	
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic					
OVERALL GRADE (Any one)	POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT				
Name of Industry/Company Mentor	Mr. Vishal Verma				
Signature of Industry/ Company Mentor					

Receiving Date	19/05/24	Name of Faculty Mentor	Dr. Atul Kumar Ray	Sign	