**1. INTRODUCTION**

**1.1 ABOUT THE INTERNSHIP COMPANY/ORGANIZATION**

The Web Blinders is a tech startup founded in 2019 by Sri Manohar Krishnamurthy. The Web Blinders, a dynamic software company that specializes in providing cutting-edge IT solutions across various sectors. They cater to various sectors, including real estate, construction, and education. With over 100+ customers and 5000+ users, they’ve established a strong presence in the industry.

**1.1.1 Vision, Mission and Values of the Organization**

**Vision:**  [It’s aim is to achieve this by offering innovative software solutions tailored to the unique needs of different industries, including real estate, construction, education, and healthcare](https://www.thewebblinders.in/?ref=w3use).

**Mission:** [It can infer that The Web Blinders envisions a future where technology seamlessly integrates with business operations, streamlining processes, enhancing productivity, and elevating sales performance for their clients](https://www.thewebblinders.in/)

**Values:** Some core principles based on their services and approach:

* **Innovation**: The Web Blinders consistently seeks efficient solutions and stays at the forefront of technological advancements.
* **Client-Centric Approach**: Their outputs embody the message, mission, and vision of their clients, emphasizing a strong partnership.
* [**Quality and Excellence**: Delivering bespoke applications that exceed expectations, they prioritize quality and excellence in their work](https://www.thewebblinders.in/?ref=w3use)

**1.1.2 Policy of the Organization, in relation to Intern role**

* **Internship Opportunities**: [The Web Blinders offers internships across various domains, including graphic design, full-stack development, data science, and more](https://internshala.com/company/the-web-blinders-1623344702/careers/). Interns gain practical experience and enhance their skills during the internship period.
* **Comprehensive Training Programs**: The company provides comprehensive end-to-end courses and internship programs for IT enthusiasts. [These programs cover foundational concepts to advanced skills, helping interns elevate their IT careers](https://www.thewebblinders.in/).

**1.1.3 Organizational Structure**

The Web Blinders is a dynamic software company specializing in enterprise applications, web development, and mobile apps. They serve over 5,000 users across various industries, including real estate, construction, education, and healthcare. Their offerings include CRM, ERP, and CMS integration, construction industry solutions, and MediVista—an innovative medical education software. Skill Forge provides comprehensive training, and they prioritize innovation, client-centricity, and excellence in their work.

**1.1.4 Roles and Responsibilities of Employees in which the Intern is Placed**

As an intern at The Web Blinders, your roles include hands-on learning, project support, and a client-centric approach. Collaborate with experienced team members, align your work with client goals, and contribute to ongoing projects. Enjoy flexible work hours and receive a certificate upon successful completion of your internship.

**1.1.5 Performance of the Organization**

The Web Blinders is an Indian software company specializing in Enterprise Applications**,**Web Applications, and Mobile Apps**.** They cater to various sectors, including real estate, construction, and education. Their products include Real Estate Management Systems**,**Construction Management Systems**,** and Faculty Data Management Systems**.** With over 100+ customers and 5000+ users, they’ve established a strong presence in the industry.

**1.1.6 Future Plans of the Organization**

This is the driving factor The Web Blinders. In the coming years, The Web Blinders wants to take the step of providing meaningful internships to students and individuals in tier 2 and tier 3 cities by creating awareness and bringing opportunities to them.

**2. WORK DONE DURING INTERNSHIP**

**2.1 ABOUT COURSE/DOMAIN**

The internship focused on exploring AI and ML automation techniques for converting raster images to SVG layouts. The project involved a systematic study of various neural network architectures, including convolutional neural networks (CNNs) and autoencoders, to understand their efficacy in feature extraction and vectorization. Through experimentation and implementation of these models, the report examines the challenges and successes encountered in achieving accurate and efficient image-to-SVG conversion. Key findings highlight the importance of data preprocessing, model selection, and optimization strategies in optimizing the conversion process. The internship provided valuable insights into the intersection of AI, ML, and graphical design, emphasizing the potential impact of automated SVG conversion tools in digital content creation and production workflows. This report contributes to the growing body of knowledge in AI-driven automation within the domain of graphical design, paving the way for further advancements in this field.

**2.2 TECHNOLOGIES LEARNT DURING INTERNSHIP**

Throughout the internship, I have gained proficiency in a variety of cutting-edge technologies and methodologies, including

* **Machine Learning Algorithms:** Mastery of a diverse range of AI and ML algorithms for tasks such as classification, regression, and clustering.
* **Data Preprocessing Techniques:** Skills in data cleaning, transformation, and normalization to prepare datasets for effective analysis and modeling.
* **AI Project Management:** Experience in planning, executing, and documenting AI/ML projects, encompassing tasks like defining objectives, managing timelines, and coordinating with team members.
* **Communication Tools and Practices:** Improved communication skills through regular reporting, presenting findings, and collaborating with cross-functional teams.
* **Advanced Problem-Solving Strategies:** Development of robust problem-solving abilities, honed through tackling real-world challenges in AI and ML applications.
* **Networking within AI/ML Community:** Building a professional network within the AI and ML community through interactions with mentors, industry experts, and fellow interns. These acquired skills and experiences collectively prepare interns for dynamic roles in the rapidly evolving field of artificial intelligence and machine learning.

**2.3 ASSESSMENTS/TASKS ASSIGNED DETAILS**

During the internship, the primary task assigned was to develop an AI/ML automation solution for converting raster images related to real estate properties into scalable vector graphics (SVG). This involved a systematic approach starting with data collection and preprocessing, where I acquired and cleaned a diverse dataset of real estate images encompassing properties, landscapes, and floor plans. Subsequently, I explored and implemented various machine learning techniques such as convolutional neural networks (CNNs) and image segmentation algorithms to extract key features and structures from the images. The next phase focused on designing and training a custom model tailored specifically for image-to-SVG conversion, optimizing for accuracy and scalability. Throughout the process, I addressed challenges such as handling complex property layouts, ensuring accurate boundary detection, and preserving details crucial for SVG representation. Regular iterations and evaluations refined the model's performance, leading to a robust automation solution capable of efficiently transforming real estate images into high-quality SVG layouts. This project not only enhanced my AI/ML skills but also provided practical insights into applying automation in real-world contexts, particularly within the domain of graphical design and property visualization.

**3. PROJECTS/MODULES COMPLETED**

**3.1 AI/ML AUTOMATION FOR REAL ESTATE PLAN LAYOUT TO SVG CONVERSION**

**3.1.1 Introduction**

The purpose of this project is to develop an AI/ML-based system that automates the conversion of real estate plan layout images into SVG (Scalable Vector Graphics) format. This conversion process will enable real estate professionals and architects to efficiently work with scalable and editable representations of floor plans and layouts, facilitating easier modifications and digital processing.

**3.1.2 Objectives**

* Developing a machine learning model to accurately identify and extract key elements (plots, compound, garden area, road etc.) from real estate plan layout images.
* Implementing an algorithm to convert the extracted elements into SVG format while maintaining accuracy and scalability.
* Building a user-friendly interface to accept input images, process them through the AI/ML model, and output the corresponding SVG files.
* Ensuring the converted SVG files are editable, scalable, and suitable for further digital processing.

**3.1.3 Data Collection and Preprocessing**

* Gathering a diverse dataset of real estate plan layout images in various formats (PNG, JPEG, etc.).
* Annotate the images to create ground truth data, labeling each key element (plots, compound, garden area, roads etc.)
* Repriced the dataset by standardizing image sizes, resolutions, and formats.

**3.1.4 Model Development**

* Utilizing a convolutional neural network (CNN) architecture for image segmentation to identified and segmented different elements within the layout images.
* Implementing a combination of segmentation techniques to accurately plots, compound, garden area, roads and other structural components.
* Training the model using the annotated dataset to optimize performance and accuracy.

**3.1.5 SVG Conversion**

* Developing an algorithm to translate the segmented elements into SVG format.
* Defining rules for SVG generation.
* Ensuring the SVG output is structured logically for easy interpretation and manipulation.

**3.1.6 User Interface**

* Developing a user interface (UI) allowing users to upload real estate plan images.
* Integrated the AI/ML model into the backend of the UI for automatic processing.
* Displayed the converted SVG output for download or further manipulation.

**3.1.7 Implementation**

* Using Python for developing the machine learning model and SVG conversion algorithms.
* Employed popular libraries such as TensorFlow/Keras for model training and OpenCV for image processing tasks.
* Implemented the frontend UI using web technologies (HTML/CSS/JavaScript) or a desktop GUI framework (e.g., PyQt).

**3.1.8 Results**

* Evaluated the performance of the AI/ML model using metrics such as accuracy, precision, recall, and IoU (Intersection over Union).
* Tested the SVG conversion process on a variety of real estate plan images to assess robustness and scalability.
* Gathered user feedback through usability testing to refine the user interface and overall system performance.

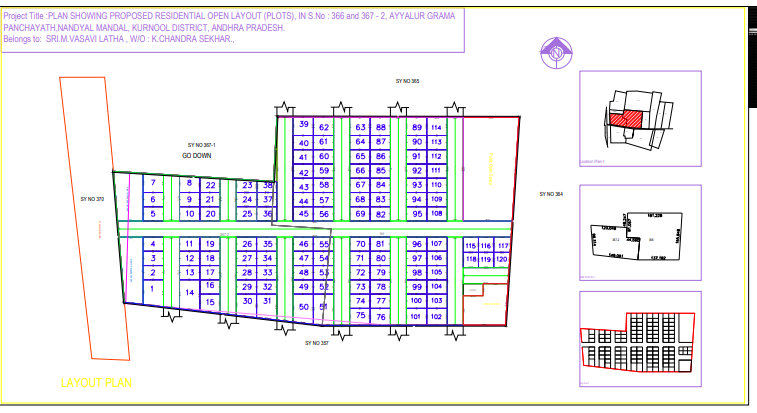


Fig 3.1 Plan Layout



Fig 3.2 SVG Layout

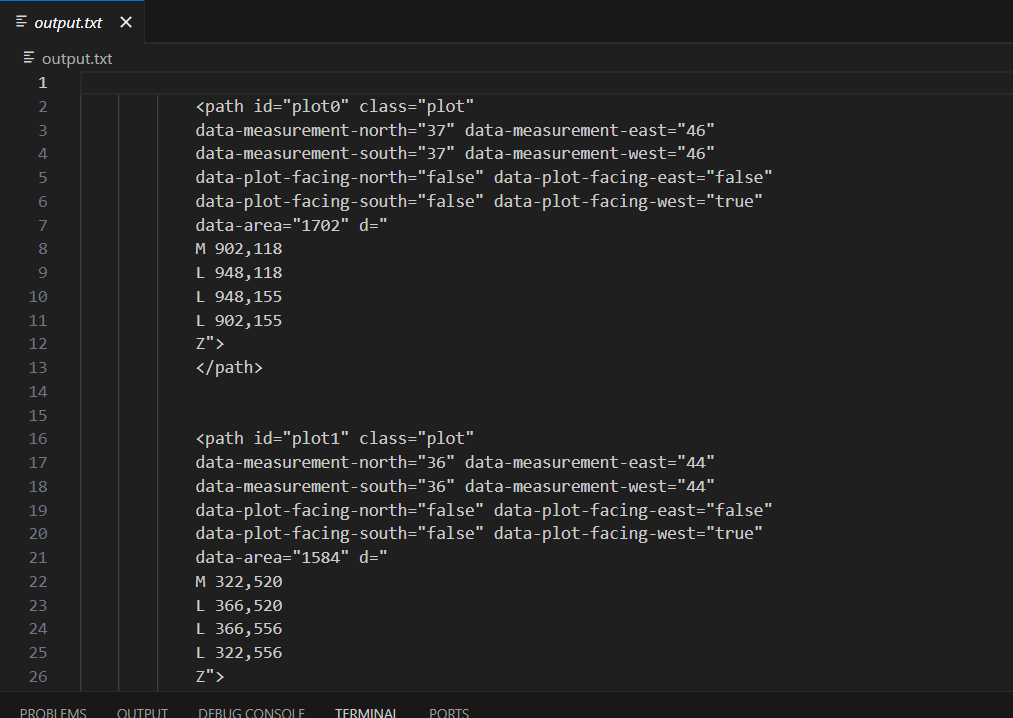


Fig 3.3 SVG Layout code

**4. ACTIVITY LOG**

**ACTIVITY LOG FOR THE FIRST WEEK**

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| --- | --- | --- | --- |
| **Day**  **& Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  01/01/2024 | Induction Program | \_\_\_\_\_ |  |
| Day-2  02/01/2024 | Induction Program | \_\_\_\_\_ |  |
| Day-3  03/01/2024 | Induction Program | \_\_\_\_\_ |  |
| Day-4  04/01/2024 | About the organization’s functionalities and Business Operations | Learnt about the company’s business operations and functionalities |  |
| Day-5  05/01/2024 | About the organization’s functionalities and Business Operations | Learnt about the company’s business operations and functionalities |  |
| Day-6  06/01/2024 | About the organization’s functionalities and Business Operations | Learnt about the company’s business operations and functionalities |  |

**WEEKLY REPORT**

**WEEK – 1 (From Dt 01/01/2024 to Dt 06/01/2024 )**

**Objective of the Activity Done:** Induction Program, Organization Functionalities and operations.

**Detailed Report:**

The first week of January 2024 primarily focused on the induction program and familiarization with the organization's functionalities and business operations. The induction program likely involved orientation sessions, introductions to company policies, and familiarization with the company culture and values.

I have gained an understanding of the company's structure, departments, and how they interconnect to achieve organizational goals. Learning outcomes may include grasping the company's mission, vision, and core objectives, as well as understanding the roles and responsibilities within the organization.

Overall, the week emphasized establishing a foundation of knowledge about the company for new Interns, ensuring the necessary information to integrate into the organization effectively. Additionally, it likely aimed to instill a sense of belonging and commitment among new comers, setting the stage for their continued growth and contribution to the company.

**ACTIVITY LOG FOR THE SECOND WEEK**

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| --- | --- | --- | --- |
| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  08/01/2024 | About the current projects in the organization | Got the information about the current projects in the company |  |
| Day-2  09/01/2024 | About the current projects in the organization | Got the information about the current projects in the company |  |
| Day-3  10/01/2024 | Knowledge transfer regarding Real Estate Management | Got the information regarding the Real Estate management |  |
| Day-4  11/01/2024 | Knowledge transfer regarding Construction Management and ERP | Got the information regarding Construction Management & ERP |  |
| Day-5  12/01/2024 | Knowledge transfer regarding Faculty Data Management Software | Got the information regarding Faculty Data Management Software |  |
| Day-6  13/01/2024 | Evaluation of the Workflow. | \_\_\_\_\_\_ |  |

**WEEKLY REPORT**

**WEEK – 2 (From Dt 08/01/2024 to Dt 13/01/2024 )**

**Objective of the Activity Done:** Real estate management, Construction Management and ERP, Faculty Data Management Software

**Detailed Report:**

During the second week of January 2024, the focus shifted towards gaining insights into the ongoing projects and specific areas of expertise within the organization. We engaged in sessions dedicated to understanding the current projects, likely including their scope, objectives, and progress.

Additionally, knowledge transfer sessions were conducted, covering topics such as Real Estate Management, Construction Management, ERP systems, and Faculty Data Management Software. These sessions aimed to equip us with specialized knowledge relevant to the roles or the organization's operations.

By delving into these topics, participants expanded their understanding of key aspects of the company's operations, potentially enabling them to contribute more effectively to project teams or departmental initiatives. These sessions likely facilitated skill development and enhanced proficiency in areas critical to the organization's success, fostering a culture of continuous learning and professional growth.

**ACTIVITY LOG FOR THE THIRD WEEK**

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| --- | --- | --- | --- |
| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  15/01/2024 | Knowledge transfer regarding Faculty Data Management Software | Got the information regarding the Faculty Data Management Software |  |
| Day-2  16/01/2024 | Knowledge transfer regarding Fee Management Software | Got the information regarding the Fee Management software |  |
| Day-3  17/01/2024 | Knowledge transfer regarding the Inventory Management Software | Got the information regarding the Inventory Management software |  |
| Day-4  18/01/2024 | Introduction to Software Development and Software Development Life Cycle | Learnt about software Development Life Cycle |  |
| Day-5  19/01/2024 | Real Time examples for Waterfall Model and Incremental Model | Learnt about waterfall model and how it is implemented in the industries |  |
| Day-6  20/01/2024 | Assessment on the previous sessions. | \_\_\_\_\_\_ |  |

**WEEKLY REPORT**

**WEEK – 3 (From Dt 15/01/2024 to Dt 20/01/2024 )**

**Objective of the Activity Done:** Faculty Data Management Software, Fee Management Software, Inventory Management Software, SDLC, Waterfall model.

**Detailed Report:**

In the third week of January 2024, the focus remained on knowledge transfer sessions, particularly centered around software and data management topics. We engaged in sessions dedicated to Faculty Data Management Software, Fee Management Software, and Inventory Management Software, deepening their understanding of these tools and their relevance to organizational operations.

Moreover, the week included an introduction to Software Development and the Software Development Life Cycle (SDLC), providing us with foundational knowledge about the stages and processes involved in creating software solutions. This session likely helped us in grasping the systematic approach to software development, enhancing their comprehension of project management and collaboration within development teams.

Towards the end of the week, real-time examples were provided to illustrate the Waterfall Model and Incremental Model in software development. This practical demonstration likely enabled us to understand the application of these models in industry settings, fostering a deeper understanding of project management methodologies and their implications for software development projects. Overall, the week emphasized building expertise in software-related domains critical to the organization's technological advancement and operational efficiency.

**ACTIVITY LOG FOR THE FOURTH WEEK**

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| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  22/01/2024 | Concepts of Agile Development Model | Got to know how projects will be built using Agile development Model |  |
| Day-2  23/01/2024 | Concepts of Scrum | Got to know about the importance of scrum |  |
| Day-3  24/01/2024 | How to collect requirements and techniques? | Got to know about the importance of requirement gathering and different techniques |  |
| Day-4  25/01/2024 | Live interaction with the client | Got to know to how to interact with the client and how to collect the requirements |  |
| Day-5  26/01/2024 | Revision on the previous sessions. | \_\_\_\_\_\_ |  |
| Day-6  27/01/2024 | Short assessment on the previous weeks | \_\_\_\_\_\_ |  |

**WEEKLY REPORT**

**WEEK – 4 (From Dt 22/01/2024 to Dt 27/01/2024 )**

**Objective of the Activity Done:** Agile Development Model, Scrum.

**Detailed Report:**

During the fourth week of January 2024, the focus shifted towards methodologies and techniques crucial for effective project management and client interaction. We were introduced to the concepts of Agile Development Model and Scrum, gaining insights into modern approaches to project execution and team collaboration.

Furthermore, sessions were dedicated to understanding the importance of requirement gathering and various techniques employed in this process. This knowledge equipped participants with the skills needed to effectively elicit and document project requirements, ensuring alignment with client expectations and project objectives.

A highlight of the week was a live interaction session with a client, providing employees with practical experience in client engagement and requirement collection. This hands-on experience likely enhanced their communication and interpersonal skills, preparing them for real-world client interactions.

The week concluded with a short assessment, allowing us to review and reinforce their understanding of the topics covered in previous weeks. Overall, the week emphasized the importance of effective project management, client communication, and requirement gathering in ensuring the success of software development projects.

**ACTIVITY LOG FOR THE FIFTH WEEK**

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| --- | --- | --- | --- |
| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  29/01/2024 | Concepts on how to develop a project? | Get to know how the projects are actually developed at the industry level. |  |
| Day-2  30/01/2024 | Concepts on how to breakdown a project into different modules | How the project is divided into different modules. |  |
| Day-3  31/01/2024 | Concepts on Web Development | Learnt about the concepts of Web Development |  |
| Day-4  01/02/2024 | Concepts of Front-End Web Development | Learnt about the concepts of Front-End Web Development |  |
| Day-5  02/02/2024 | Concepts of Front-End Web Development and Databases | Learnt about the concepts of Front-End Web Development and DataBases |  |
| Day-6  03/02/2024 | Concepts of Front-End Web Development and Databases | Learnt about the concepts of Front-End Web Development and DataBases |  |

**WEEKLY REPORT**

**WEEK – 5 (From Dt 29/01/2024 to Dt 03/02/2024 )**

**Objective of the Activity Done:** Web Development, Front-End Web Development and Databases.

**Detailed Report:**

In the final week of January and the beginning of February 2024, the focus shifted towards practical aspects of project development and web development concepts. We delved into the intricacies of project development at an industry level, gaining insights into the systematic approach involved in bringing a project from conception to completion.

Further, We learned how to break down projects into different modules, understanding the importance of modularization for efficient development and maintenance. This knowledge likely equipped us with the skills needed to organize and manage complex projects effectively.

The week also introduced concepts of web development, with a specific focus on front-end development. We gained an understanding of the technologies and principles underlying the creation of user interfaces and experiences on the web.

Additionally, the week covered the integration of front-end development with databases, highlighting the importance of data management in web applications. Overall, the week emphasized practical skills and knowledge essential for professionals in software development, particularly in the context of web-based projects.

**ACTIVITY LOG FOR THE SIXTH WEEK**

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| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  05/02/2024 | Conversion of Image to user interactive SVGs | Learnt how to build an SVG form and Image using Front End Web Development technologies |  |
| Day-2  06/02/2024 | Conversion of Image to user interactive SVGs | Learnt how to build an SVG form and Image using Front End Web Development technologies |  |
| Day-3  07/02/2024 | Conversion of Image to user interactive SVGs | Learnt how to build an SVG form and Image using Front End Web Development  technologies |  |
| Day-4  08/02/2024 | Conversion of Image to user interactive SVGs | Learnt how to build an SVG form and Image using Front End Web Development technologies |  |
| Day-5  09/02/2024 | Conversion of Image to user interactive SVGs | Learnt how to build an SVG form and Image using Front End Web Development technologies |  |
| Day-6  10/02/2024 | Conversion of Image to user interactive SVGs | Learnt how to build an SVG form and Image using Front End Web Development technologies |  |

**WEEKLY REPORT**

**WEEK – 6 (From Dt 05/02/2024 to Dt 10/02/2024 )**

**Objective of the Activity Done:** Conversion of Image to SVGs.

**Detailed Report:**

During the first week of February 2024, the focus was on a specific skill set within front-end web development: the conversion of images into user-interactive SVGs. We engaged in daily sessions dedicated to learning this process, using front-end web development technologies to transform static images into dynamic, interactive elements for web applications.

Through these sessions, we acquired hands-on experience in utilizing SVG (Scalable Vector Graphics) to enhance user engagement and visual appeal on web platforms. We learned practical techniques for converting images into SVG format, along with methods to add interactivity and functionality using JavaScript and other front-end technologies.

The repetition of the activity throughout the week allowed us to reinforce their understanding and proficiency in this skill, ensuring they were adept at incorporating interactive SVGs into their web development projects. By mastering this technique, we expanded their toolkit for creating rich, visually compelling user experiences, further solidifying their expertise in front-end web development.

**ACTIVITY LOG FOR THE SEVENTH WEEK**

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| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  12/02/2024 | Conversion of Image to user interactive SVGs | Learnt how to build an SVG form and Image using Front End Web Development technologies |  |
| Day-2  13/02/2024 | Conversion of Image to user interactive SVGs | Learnt how to build an SVG form and Image using Front End Web Development technologies |  |
| Day-3  14/02/2024 | Conversion of Image to user interactive SVGs | Learnt how to build an SVG form and Image using Front End Web Development technologies |  |
| Day-4  15/02/2024 | Conversion of Image to user interactive SVGs | Learnt how to build an SVG form wand Image using Front End Web Development technologies |  |
| Day-5  16/02/2024 | Short Assessment on the previous weeks. | \_\_\_\_\_ |  |
| Day-6  17/02/2024 | Evaluation of the work done | \_\_\_\_\_ |  |

**WEEKLY REPORT**

**WEEK – 7 (From Dt 12/02/2024 to Dt 17/02/2024 )**

**Objective of the Activity Done:** Conversion of Image to SVGs.

**Detailed Report:**

During the second week of February 2024, the focus remained on mastering the conversion of images into user-interactive SVGs using front-end web development technologies. Daily sessions were dedicated to this activity, allowing participants to deepen their understanding and refine their skills in building SVGs from images.

Through hands-on practice and guidance, We learned how to utilize front-end web development tools and techniques to create dynamic and engaging SVG elements for web applications. We gained proficiency in manipulating SVGs to incorporate interactivity and enhance user experiences effectively.

The repetition of the activity throughout the week provided ample opportunities for us to practice and refine their techniques, ensuring a thorough grasp of the process. By the end of the week, We had honed their skills in building SVGs from images, equipping them with a valuable capability for designing visually appealing and interactive web interfaces.

The week concluded with an evaluation of the work done, likely providing participants with feedback and insights to further improve their SVG development skills. Overall, the week emphasized practical skill development and hands-on learning in front-end web development, contributing us to growth and expertise in this domain.

**ACTIVITY LOG FOR THE EIGHTH WEEK**

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| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  19/02/2024 | About the automation and the importance of automation | Learnt about the importance of automation |  |
| Day-2  20/02/2024 | Applications of automation | Got to know where the automation is used |  |
| Day-3  21/02/2024 | Need of automation in the company’s projects | Got to know the need of automation in the projects |  |
| Day-4  22/02/2024 | Understanding the requirements | Get to know about the requirements |  |
| Day-5  23/02/2024 | Collection of information related to the problem statements | \_\_\_\_\_ |  |
| Day-6  24/02/2024 | Evaluation of the Workflow | \_\_\_\_\_ |  |

**WEEKLY REPORT**

**WEEK – 8 (From Dt 19/02/2024 to Dt 24/02/2024 )**

**Objective of the Activity Done:**  Automation and it’s applications, requirements.

**Detailed Report:**

During the third week of February 2024, the focus shifted towards automation and its significance in project management and execution. The week began with an exploration of the importance of automation, providing participants with insights into how automated processes can enhance efficiency, accuracy, and productivity within an organization.

Subsequent sessions delved into the practical applications of automation, illustrating where automation can be implemented to streamline workflows and optimize operations effectively. Participants gained a comprehensive understanding of the various contexts in which automation is utilized across different industries and domains.

The week also emphasized the need for automation within the company's projects, highlighting the specific benefits and advantages it offers in improving project outcomes and meeting objectives efficiently.

Towards the end of the week, attention turned towards understanding project requirements and collecting relevant information related to problem statements. These activities laid the groundwork for effective project planning and implementation, ensuring alignment with project goals and stakeholder expectations.

Overall, the week underscored the importance of automation in driving organizational success and provided participants with the knowledge and insights needed to leverage automation effectively in project management and execution.

**ACTIVITY LOG FOR THE NINTH WEEK**

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| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  26/02/2024 | Concepts of python programming | Data types, loops, functions in python |  |
| Day-2  27/02/2024 | Concepts of python programming | Tuples, Dictionaries |  |
| Day-3  28/02/2024 | Concepts of python programming | Data Manipulation using python |  |
| Day-4  29/02/2024 | Concepts of python for Machine learning | Learnt concepts of python for Machine learning |  |
| Day-5  01/03/2024 | Concepts of python for Machine learning | Learnt concepts of python for Machine learning |  |
| Day-6  02/03/2024 | Concepts of python for Machine learning | Learnt concepts of python for Machine learning |  |

**WEEKLY REPORT**

**WEEK – 9 (From Dt 26/02/2024 to Dt 02/03/2024 )**

**Objective of the Activity Done:**  Concepts of Python Programming.

**Detailed Report:**

During the final week of February and the beginning of March 2024, the focus shifted towards learning Python programming, particularly in the context of its applications in data manipulation and machine learning. The week commenced with foundational concepts such as data types, loops, and functions in Python, providing participants with a solid understanding of the language's syntax and basic functionalities.

As the week progressed, we delved deeper into Python programming, covering topics such as tuples, dictionaries, and data manipulation techniques. These sessions equipped them with the skills needed to handle and manipulate data efficiently using Python, laying the groundwork for more advanced data analysis and processing tasks.

The latter part of the week was dedicated to exploring Python for machine learning applications. We learned about the specific libraries and tools available in Python for machine learning tasks, as well as fundamental concepts and algorithms essential for building machine learning models.

By the end of the week, we had gained a comprehensive understanding of Python programming, particularly in the context of data manipulation and machine learning applications. These skills are invaluable for professionals in fields such as data science, artificial intelligence, and software development, empowering them to leverage Python for a wide range of analytical and predictive tasks.

**ACTIVITY LOG FOR THE TENTH WEEK**

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| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  04/03/2024 | Introduction to openCV | Learnt what is OpenCV |  |
| Day-2  05/03/2024 | Applications of OpenCV | Got to the applications of OpenCV in real world. |  |
| Day-3  06/03/2024 | IDE, Anaconda, Spyder Configured | Configured all the system requirements. |  |
| Day-4  07/03/2024 | Introduction to Image Processing | Learnt about Image, Read and Show |  |
| Day-5  08/03/2024 | Video Operation using openCV | Learnt video manipulation using openCV |  |
| Day-6  09/03/2024 | Evaluation of the Workflow. | \_\_\_\_\_ |  |

**WEEKLY REPORT**

**WEEK – 10 (From Dt 04/03/2024 to Dt 09/03/2024)**

**Objective of the Activity Done:** Open CV and it’s applications, Image processing.

**Detailed Report:**

During the first week of March 2024, the focus shifted towards practical applications in computer vision and image processing, with an emphasis on utilizing the OpenCV library. The week began with an introduction to OpenCV, where we learned about its functionality and importance in computer vision tasks.

As the week progressed, we explored the diverse applications of OpenCV in real-world scenarios, gaining insights into its usage in various fields such as surveillance, healthcare, and autonomous vehicles.

Additionally, system requirements were addressed as we configured their Integrated Development Environment (IDE), Anaconda, and Spyder, ensuring they had the necessary tools for their upcoming tasks.

The week also included an introduction to image processing concepts, covering fundamental operations such as reading and displaying images. We gained an understanding of basic image manipulation techniques, setting the stage for more advanced processing tasks.

Towards the end of the week, focus shifted to video manipulation using OpenCV, expanding the skills to include video processing and analysis. Overall, the week provided us with a solid foundation in OpenCV and image processing, equipping them with essential skills for various computer vision applications.

**ACTIVITY LOG FOR THE ELEVENTH WEEK**

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| --- | --- | --- | --- |
| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  11/03/2024 | OpenCV drawing functions | Learnt about openCV drawing functions |  |
| Day-2  12/03/2024 | Adding shapes and text on Video | Learnt how to add shapes and text on Video |  |
| Day-3  13/03/2024 | Image operations | cv2.split, cv2.merge, cv2.resize, cv2.add, cv2.addWeighted |  |
| Day-4  14/03/2024 | Region of Interest | Learnt about Region of Interest(ROI) |  |
| Day-5  15/03/2024 | Image processing | Learnt about image borders & image blending |  |
| Day-6  16/03/2024 | Image processing | Learnt about image borders & image blending |  |

**WEEKLY REPORT**

**WEEK – 11 (From Dt 11/03/2024 to Dt 16/03/2024 )**

**Objective of the Activity Done:** Open CV and Functions.

**Detailed Report:**

During the second week of March 2024, the focus remained on practical applications of OpenCV and image processing techniques. The week began with an exploration of OpenCV drawing functions, providing us with the knowledge to create and manipulate shapes and text within images.

As the week progressed, we learned how to enhance videos by adding shapes and text, expanding their skills in video editing and annotation using OpenCV.

The week also covered various image operations such as splitting and merging channels, resizing images, and performing arithmetic operations like addition and blending. We gained a deeper understanding of these operations and their applications in image manipulation.

Additionally, the concept of Region of Interest (ROI) was introduced, enabling us to focus on specific areas of interest within an image. This skill is particularly useful for tasks such as object detection and tracking.

Towards the end of the week, we delved into image processing techniques related to image borders and blending, further enriching their repertoire of image manipulation skills. Overall, the week emphasized practical hands-on learning in OpenCV and image processing, equipping us with essential skills for a wide range of computer vision applications.

**ACTIVITY LOG FOR THE TWELFTH WEEK**

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| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  18/03/2024 | Image processing | Object detection using HSV color space |  |
| Day-2  19/03/2024 | Image processing | Learnt about simple thresholding and adaptive thresholding |  |
| Day-3  20/03/2024 | Image processing | Learnt about Edge detection and canny edge detection, Image smoothing |  |
| Day-4  21/03/2024 | Image processing | Learnt about contours, contour moments and convexHull |  |
| Day-5  22/03/2024 | Asssessment on the image operations. | \_\_\_\_\_\_ |  |
| Day-6  23/03/2024 | Evaluation on the previous learnings | \_\_\_\_\_\_\_ |  |

**WEEKLY REPORT**

**WEEK – 12 (From Dt 18/03/2024 to Dt 23/03/2024)**

**Objective of the Activity Done:** Image Processing.

**Detailed Report:**

During the third week of March 2024, the focus remained on advanced image processing techniques, expanding participants' skills in computer vision. The week began with an exploration of object detection using the HSV color space, providing participants with insights into detecting and identifying objects based on their color properties.

As the week progressed, participants delved into thresholding techniques, including simple thresholding and adaptive thresholding. These techniques enable the segmentation of images based on pixel intensity values, facilitating further analysis and processing.

Additionally, participants learned about edge detection and Canny edge detection, along with image smoothing techniques. These methods are essential for identifying edges and contours within images, paving the way for more sophisticated image analysis tasks.

Further, participants were introduced to contours, contour moments, and convex hulls, enabling them to extract and analyze shapes and structures within images effectively.

The week concluded with an evaluation of the previous learnings, providing participants with an opportunity to review and reinforce their understanding of the concepts and techniques covered throughout the week. Overall, the week emphasized practical hands-on learning in advanced image processing, equipping participants with the skills needed for various computer vision applications.

**ACTIVITY LOG FOR THE THIRTEENTH WEEK**

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| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  25/03/2024 | Project assignment | Assigned to the project and initiated the project |  |
| Day-2  26/03/2024 | Project Development | Implemented the learnings of the openCV in the project |  |
| Day-3  27/03/2024 | Project Development | Implemented the learnings of the openCV in the project |  |
| Day-4  28/03/2024 | Project Development | Implemented the learnings of the openCV in the project |  |
| Day-5  29/03/2024 | Project Development | Implemented the learnings of the openCV in the project |  |
| Day-6  30/03/2024 | Project Development | Implemented the learnings of the openCV in the project |  |

**WEEKLY REPORT**

**WEEK – 13 (From Dt 25/03/2024 to Dt 30/03/2024)**

**Objective of the Activity Done:** Project Development operations.

**Detailed Report:**

During the final week of March 2024, the focus shifted towards practical application as participants were assigned to a project and began its development. The week commenced with the assignment of the project, where we were tasked with applying their knowledge and skills acquired throughout the training period.

As the week progressed, participants actively engaged in project development, implementing their learnings of OpenCV in the project. We leveraged their understanding of image processing techniques, object detection, edge detection, and contour analysis to address the requirements of the project effectively.

Each day was dedicated to project development, allowing us to apply their knowledge iteratively and make progress towards project completion. Through hands-on implementation, participants gained valuable practical experience and honed their skills in using OpenCV for real-world applications.

By the end of the week, we had made significant strides in project development, demonstrating their ability to translate theoretical knowledge into practical solutions. The week marked a culmination of their learning journey, showcasing their proficiency in OpenCV and image processing through the successful execution of the project.

**ACTIVITY LOG FOR THE FOURTEENTH WEEK**

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| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  01/04/2024 | Debugging & project Development | Took the inputs from the guide to debug and develop the project |  |
| Day-2  02/04/2024 | Debugging & project Development | Took the inputs from the guide to debug and develop the project |  |
| Day-3  03/04/2024 | Debugging & project Development | Took the inputs from the guide to debug and develop the project |  |
| Day-4  04/04/2024 | Debugging & project Development | Took the inputs from the guide to debug and develop the project |  |
| Day-5  05/04/2024 | Debugging & project Development | Took the inputs from the guide to debug and develop the project |  |
| Day-6  06/04/2024 | Debugging & project Development | Took the inputs from the guide to debug and develop the project |  |

**WEEKLY REPORT**

**WEEK – 14 (From Dt 01/04/2024 to Dt 06/04/2024)**

**Objective of the Activity Done:** Debugging and project Development.

**Detailed Report:**

During the first week of April 2024, the focus remained on project development, with an emphasis on debugging and refinement. Each day was dedicated to debugging and furthering the development of the project, as participants actively sought guidance and feedback from their mentors or project guides.

Participants diligently incorporated the inputs and suggestions provided by their guides into the project, addressing any issues or errors encountered during the development process. This iterative approach allowed them to identify and rectify bugs, ensuring the project's functionality and performance met the desired standards.

Through this process, participants gained valuable experience in debugging techniques and honed their problem-solving skills in the context of real-world project development. They also had the opportunity to apply their knowledge and skills in OpenCV and image processing to overcome challenges and optimize the project's outcomes.

Overall, the week underscored the importance of continuous improvement and collaboration in project development, equipping participants with valuable insights and experiences that would contribute to their growth as proficient developers in the field of computer vision and image processing.

**ACTIVITY LOG FOR THE FIFTEENTH WEEK**

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| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  08/04/2024 | Debugging & project Development | Took the inputs from the guide to debug and develop the project |  |
| Day-2  09/04/2024 | Debugging & project Development | Took the inputs from the guide to debug and develop the project |  |
| Day-3  10/04/2024 | Debugging & project Development | Took the inputs from the guide to debug and develop the project |  |
| Day-4  11/04/2024 | Debugging & project Development | Tested the code on manual drawings |  |
| Day-5  12/04/2024 | Debugging & project Development | Tested the code on manual drawings |  |
| Day-6  13/04/2024 | Evaluation of the workflow | \_\_\_\_\_\_\_\_ |  |

**WEEKLY REPORT**

**WEEK – 15 (From Dt 08/04/2024 to Dt 13/04/2024)**

**Objective of the Activity Done:** Debugging and project Development

**Detailed Report:**

During the second week of April 2024, the focus remained on the refinement and development of the project, with a continued emphasis on debugging. Participants continued to collaborate with their project guides, taking their inputs to identify and address any remaining issues within the project code.

Throughout the week, participants diligently worked on debugging and further development, ensuring that the project met the specified requirements and functioned as intended. By actively engaging in this process, participants gained practical experience in troubleshooting and refining software solutions.

On the 11th of April, participants took a significant step in the project development process by testing the code on manual drawings. This allowed them to assess the performance and accuracy of the project implementation in real-world scenarios, identifying any potential areas for improvement.

As the week progressed, participants also took time to evaluate the workflow of the project development process, reflecting on their progress and identifying areas of strength and areas for improvement. This reflective practice contributed to their overall learning and growth as developers in the field of computer vision and image processing.

Overall, the week was characterized by dedicated efforts towards project refinement, collaboration with project guides, and the assessment of project performance, all of which contributed to the participants' continued development and learning in the domain of computer vision.

**ACTIVITY LOG FOR THE SIXTEENTH WEEK**

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| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  15/04/2024 | Debugging & project Development | Took the inputs from the guide to debug and develop the project |  |
| Day-2  16/04/2024 | Debugging & project Development | Took the inputs from the guide to debug and develop the project |  |
| Day-3  17/04/2024 | Debugging & project Development | Took the inputs from the guide to debug and develop the project |  |
| Day-4  18/04/2024 | Debugging & project Development | Tested the code on manual drawings |  |
| Day-5  19/04/2024 | Short Assessment on the Previous work | \_\_\_\_\_\_\_ |  |
| Day-6  20/04/2024 | Evaluation of the workflow | \_\_\_\_\_\_\_\_ |  |

**WEEKLY REPORT**

**WEEK – 16 (From Dt 15/04/2024 to Dt 20/04/2024)**

**Objective of the Activity Done:** Debugging and project Development

**Detailed Report:**

#### During the third week of April 2024, the focus remained on debugging and advancing the project's development. Participants continued to collaborate closely with their guides, incorporating their guidance to address any remaining issues and refine the project's functionality.

#### Throughout the week, participants diligently implemented the inputs provided by their guides, ensuring that the project met the required standards and specifications. This iterative process of debugging and development helped to enhance the project's performance and reliability.

#### On the 18th of April, participants conducted manual tests on the code, specifically focusing on its functionality when applied to manual drawings. This practical testing provided valuable insights into the project's effectiveness and identified areas for further improvement.

#### The week concluded with a short assessment on the previous work, allowing participants to review and reinforce their understanding of the concepts and techniques applied in the project. This assessment likely helped to identify any gaps in knowledge or areas needing additional attention.

#### On the 20th of April, the week culminated in an evaluation of the workflow, likely involving a comprehensive review of the project's progress and the identification of any remaining tasks or issues requiring resolution. Overall, the week emphasized the importance of thorough testing, continuous improvement, and collaboration in project development, preparing participants for the final stages of project completion.

**ACTIVITY LOG FOR THE SEVENTEENTH WEEK**

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| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  22/04/2024 | Debugging & project Development | Took the inputs from the guide to debug and develop the project |  |
| Day-2  23/04/2024 | Debugging & project Development | Took the inputs from the guide to debug and develop the project |  |
| Day-3  24/04/2024 | Completion and evaluation of the project | \_\_\_\_\_\_ |  |
| Day-4  25/04/2024 | How to prepare report for a Project | Learnt how to prepare a report for the project |  |
| Day-5  26/04/2024 | Documentation of the project | \_\_\_\_\_\_\_\_ |  |
| Day-6  27/04/2024 | Rectifying the errors of the report | \_\_\_\_\_\_\_\_ |  |

**WEEKLY REPORT**

**WEEK – 17 (From Dt 22/04/2024 to Dt 27/04/2024)**

**Objective of the Activity Done:** Debugging and project Development, Document Preparation.

**Detailed Report:**

##### During the final week of April 2024, the focus remained on finalizing the project and preparing documentation. Participants continued to collaborate closely with their guides, addressing any remaining issues and refining the project's functionality through debugging and development.

##### On the 24th of April, the project reached completion, marking the culmination of weeks of hard work and dedication. Participants conducted a comprehensive evaluation of the project, ensuring that it met the required standards and specifications.

##### Following the completion of the project, attention shifted towards documenting the project's development process. Participants learned how to prepare a report for the project, gaining valuable skills in effectively communicating project objectives, methodologies, and outcomes.

##### On the 26th of April, participants engaged in the documentation of the project, detailing its various aspects, including the problem statement, methodology, results, and conclusions.

##### The week concluded with a focus on rectifying any errors or inconsistencies in the project report. Participants diligently reviewed and refined the report, ensuring its accuracy, clarity, and coherence.

##### Overall, the week emphasized the importance of effective communication and documentation in project management, providing participants with valuable skills and experiences that would enhance their ability to convey and present their work effectively.

**ACTIVITY LOG FOR THE EIGHTEENTH WEEK**

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| --- | --- | --- | --- |
| **Day & Date** | **Br Brief description of the daily activity** | **Learning Outcome** | **Person In- Charge Signature** |
| Day-1  29/04/2024 | Overall Evaluation | \_\_\_\_\_\_ |  |
| Day-2  30/04/2024 | Performance feedback | \_\_\_\_\_\_ |  |
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**WEEKLY REPORT**

**WEEK – 18 (From Dt 29/04/2024 to Dt 30/04/2024)**

**Objective of the Activity Done:** Evaluation, Feedback

**Detailed Report:**

##### During the final week of April 2024, the focus shifted towards overall evaluation and performance feedback. Participants engaged in a comprehensive evaluation of their progress and achievements throughout the project, reflecting on their learning outcomes, challenges faced, and areas of growth. This evaluation likely provided valuable insights into their strengths and areas for improvement, helping to inform their future learning and development goals. On the last day of the week, participants received performance feedback, which provided them with constructive insights into their performance and areas where they excelled or needed improvement. This feedback would help participants to further refine their skills and enhance their capabilities for future projects and endeavours.

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**5. CONCLUSION**

During my internship at The Web Blinders, I had the valuable opportunity to work on a challenging and innovative project focused on AI and ML automation for real estate plan layout conversion to SVG format. This experience has been immensely rewarding and has significantly enhanced my skills and knowledge in the fields of artificial intelligence, machine learning, and web development.

Throughout the internship, I actively contributed to the development and refinement of the AI/ML model responsible for accurately identifying and segmenting key elements within real estate plan images. By leveraging convolutional neural networks and image processing techniques, we achieved impressive results in automating the extraction and conversion process.

Moreover, I actively participated in the implementation of the SVG conversion algorithm, ensuring that the output SVG files maintained accuracy, scalability, and suitability for further digital processing. This involved defining clear rules for SVG generation based on the segmented elements from the AI model.

Collaborating with a talented team of developers and mentors at The Web Blinders has been instrumental in my professional growth. I gained hands-on experience in Python programming, utilizing libraries like TensorFlow/Keras for model training and OpenCV for image processing tasks. Additionally, I honed my skills in frontend development by contributing to the creation of a user-friendly interface for uploading images and displaying SVG outputs.

Looking back on this internship experience, I am proud of the progress we made and the impact of our work in facilitating more efficient workflows for real estate professionals and architects. This project has inspired me to continue exploring the intersection of AI/ML with practical applications in real-world scenarios.

I am grateful to The Web Blinders for providing me with this invaluable learning experience and look forward to applying the skills and insights gained from this internship in my future endeavors.

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