

BASAVARAJESWARI GROUP OF INSTITUTIONS

Ballari Institute of Technology & Management

AUTONOMOUS INSTITUTE UNDER VISVESVARAYA TECHNOLOGICAL UNIVERSITY JNANA SANGAMA,
BELAGAVI 590018

INTERNSHIP

Report On PROJECT SCHEDULING ASSISTANT

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

Bachelor of Engineering In ELECTRICAL AND ELECTRONICS ENGINEERING

Submitted by

Mohammed Musaddiq.K – 3BR23EE065

Internship Carried Out By
EZ TRAININGS & TECHNOLOGIES PVT.LTD HYDERABAD

Internal Guide

Naga Partyusha

Asst.prof,EEE

External Guide

Monahar

Technical Trainer

BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT

NACC Accredited Institution*

(Recognized by Govt. of Karnataka, approved by AICTE, New Delhi & Affiliated to Visvesvaraya Technological University, Belagavi)

"Jnana Gangotri" Campus, No.873/2, Ballari-Hospet Road, Allipur,
Ballari-583 104 (Karnataka) (India) Ph: 08392 – 237100 /
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2023-2024

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

CERTIFICATE

This is to certify that the Internship entitled "**“ PROJECT SCHEDULING ASSISTANT ”** has been successfully completed by **MOHAMMED MUSADDIQ K** bearing USN **3BR23EE065** bonafide students of Ballari Institute of Technology and Management, Ballari. For the partial fulfillment of the requirements for the **Bachelor’s Degree in Electrical and Electronics Engineering** of the VISVESVARAYA TECHNOLOGICAL UNIVERSITY, Belagavi during the academic year 2023-2024.

Signature of Internship

Co-ordinator

Naga Pratushya

Ass.prof.EEE

Signature of HOD

Sharan Reddy

Prof. and HOD of EEE

DECLARATION

I, MOHAMMED MUSADDIQ K, second year student of Electrical and Electronics Engineering, Ballari Institute Of Technology And Management, Ballari, declare that Internship entitled **PROJECT SCHEDULING ASSISTANT** is a part of internship Training successfully carried out by **EZ TECHNOLOGIES & TRAININGS PVT.LTD, HYDERABAD** at "**BITM,BALLARI**". This report is submitted in partial fulfilment of requirements for the award of the degree, Bachelor of Engineering in Electrical and Electronics Engineering of the Visvesvaraya Technological University, Belagavi.

Date : 28/09/2024

Place : Ballari

Signature of the Student

ACKNOWLEDGEMENT

The satisfactions that a company the successful completion of my internship on “**PROJECT SCHEDULING ASSISTANT**” would be incomplete without the mention of people who made it possible, whose noble gesture, affection, guidance, encouragement and support crowned my efforts with success. It is my privilege to express my gratitude and respect to all those who inspired me in the completion of my internship.

I am grateful to our respective coordinators “**Naga Pratyusha (Asst.prof,EEE)**” for their noble gesture, support co-ordination and valuable suggestions given to us in the completion of Internship.

I also thank Sharan Reddy, H.O.D. Department of **Electrical and Electronics Engineering** for extending all her valuable support and encouragement.

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CHAPTER-1

DAY TO DAY ACTIVITIES



Basavarajeshwari Group of Institutions
BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT
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Internship Program on Python for BE-3rd Sem students
From 9th September to 28th September 2024

Student Name: Mohammed Musaddiq K USN No: 3BR22EE065 Branch: EEE

INDEX PAGE			
Day	Date	Content Covered	Signature of the faculty in-charge
1	9.09.24	Introduction to Python, Setup & Installation, First Python Program, Variables, Data Types, and Basic I/O	
2	10.09.24	Control Structures: If-else, Loops, Functions and Modules	
3	11.09.24	Lists, Tuples, and Dictionaries, File Handling	
4	12.09.24	Exception Handling, Practice exercises on Python basics	
5	13.09.24	Introduction to OOP, Classes, and Objects	
6	14.09.24	Inheritance, Polymorphism, and Encapsulation	
7	15.09.24	Abstract Classes and Interfaces	
8	17.09.24	Practice exercises on OOP concepts	
9	18.09.24	Introduction to DSA, Arrays, and Linked Lists	
10	19.09.24	Stacks and Queues	
11	20.09.24	Trees and Graphs	
12	21.09.24	Searching and Sorting Algorithms	
13	23.09.24	Project Building & Presentations	

14	24.09.24	Project Building & Presentations	
15	25.09.24	Project Building & Presentations	
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17	27.09.24	Project Building & Presentations	
18	28.09.24	Project Building & Presentations	

CHAPTER-2

COMPANY PROFILE

Company Name: EZ Trainings and Technologies Pvt. Ltd.

Introduction:

EZ Trainings and Technologies Pvt. Ltd. is a dynamic and innovative organization dedicated to providing comprehensive training solutions and expert development services. Established with a vision to bridge the gap between academic learning and industry requirements, we specialize in college trainings for students, focusing on preparing them for successful placements. Additionally, we excel in undertaking development projects, leveraging cutting-edge technologies to bring ideas to life.

Mission:

Our mission is to empower the next generation of professionals by imparting relevant skills and knowledge through specialized training programs. We strive to be a catalyst in the career growth of students and contribute to the technological advancement of businesses through our development projects.

Services:

College Trainings:

- Tailored training programs designed to enhance the employability of students.
- Industry-aligned curriculum covering technical and soft skills.
- Placement assistance and career guidance.

Development Projects:

- End-to-end development services, from ideation to execution.
- Expertise in diverse technologies and frameworks.
- Custom solutions to meet specific business needs.

Locations: Hyderabad | Delhi NCR

At EZ Trainings and Technologies Pvt. Ltd., we believe in transforming potential into excellence

CHAPTER-3 ABSTRACT

- Project management requires precise scheduling to ensure timely completion, efficient resource allocation, and coordinated task execution.
- A project scheduling assistant automates the process of creating, managing, and optimizing project schedules.
- This tool integrates algorithms for task dependency tracking, deadline management, resource allocation, and time tracking
- By considering constraints like team availability, task priorities, and project milestones, the scheduling assistant helps project managers minimize delays and conflicts.
- The system also provides real-time updates, alerts, and visual tools (such as Gantt charts) for clear progress tracking.
- As a result, it enhances decision-making, improves productivity, and ensures a streamlined workflow, ultimately contributing to successful project delivery.
- This tool is designed to accommodate varying project scales and industries, from construction to software development. It incorporates key features such as Gantt charts, resource levelling, and critical path analysis, allowing users to visualize project timelines, assign tasks efficiently, and identify potential bottlenecks or risks.
- By continuously monitoring task progress and constraints, the assistant can dynamically adjust schedules in response to changes, such as delays, resource reallocation, or shifting priorities. Real-time notifications, progress tracking, and collaborative features further enhance communication across teams, ensuring that all stakeholders stay informed and aligned with project goals.
- In addition, the system leverages machine learning to predict potential delays and provide data-driven recommendations to optimize project flow.
- Integration with popular project management platforms and tools enhances its adaptability and user engagement.
- Ultimately, the Project Scheduling Assistant helps organizations reduce overhead costs, increase productivity, and meet deadlines more consistently.
- **Resource Allocation:** Implementing methodologies to optimize the use of human and material resources, ensuring that the right skills are matched with the right tasks at the right time.
- **Timeline Optimization:** Utilizing algorithms and scheduling software to create realistic project timelines that account for potential bottlenecks and critical paths, allowing for proactive adjustments.
- **Risk Management:** Identifying potential risks early in the scheduling process and developing contingency plans to mitigate their impact, ensuring smoother project execution.
- **Collaboration Tools:** Facilitating enhanced communication and collaboration among team members through integrated platforms that allow for real-time updates and feedback.
- **Training and Support:** Offering workshops and ongoing support to equip project managers and teams with the skills necessary to utilize the tools effectively, fostering a culture of continuous improvement.

CHAPTER-4

INTRODUCTION OF THE PROJECT

- The Project scheduling assistant presented here is a Python-based solution designed to streamline the Effective project management requires meticulous planning, coordination, and real-time adaptation to dynamic workflows.
- A Project Scheduling Assistant automates and optimizes the scheduling process by integrating advanced algorithms and user-friendly tools to ensure seamless project execution.
- The assistant handles task sequencing, resource allocation, dependency management, and deadline adherence, simplifying complex project structures for managers and teams.
- Project scheduling is a critical aspect of project management that involves the organization of tasks, resources, deadlines, and milestones to ensure timely and efficient project delivery
- . As projects grow in complexity and size, manually managing schedules becomes increasingly difficult, leading to potential delays, resource conflicts, and budget overruns.
- To address these Project scheduling is a critical aspect of project management that involves the organization of tasks, resources, deadlines, and milestones to ensure timely and efficient project delivery.
- As projects grow in complexity and size, manually managing schedules becomes increasingly difficult, leading to potential delays, resource conflicts, and budget overruns. To address these challenges, a
- Project Scheduling Assistant serves as an intelligent solution that automates and optimizes scheduling tasks.
- The Project Scheduling Assistant is a software tool designed to assist project managers in creating, managing, and adjusting project schedules.
- It uses algorithms to automate processes such as task assignment, dependency management, resource allocation, and timeline adjustment, allowing project teams to focus more on execution rather than administration.
- .The Project Scheduling Assistant is a software tool designed to assist project managers in creating, managing, and adjusting project schedules.
- It uses algorithms to automate processes such as task assignment, dependency management, resource allocation, and timeline adjustment, allowing project teams to focus more on execution rather than administration.
- Through a combination of these strategies, the project aims to minimize delays, enhance productivity, and ensure the successful delivery of projects while maintaining high-quality standards.
- By empowering teams with the knowledge and tools they need, the initiative seeks to cultivate a proactive approach to project scheduling that can adapt to evolving project demands and complexities.
- Ultimately, this project scheduling assistance initiative is designed to lead organizations towards greater efficiency, effectiveness, and success in their project endeavors.

CHAPTER 5:

MODULE DESCRIPTION

CRUD SCHEDULE:

- CREATE:
- Adding new schedules, milestones, and tasks with their associated details
- READ:
- Retrieving existing schedule information for analysis and planning.
- UPDATE:
- Modifying existing schedule entries with changes in deadlines, tasks, or dependencies
- DELETE:
- Removing outdated or unnecessary schedule entries.

CREATE PROJECT TIMELINE:

- DEFINE MILESTONES:
- Key events or deliverables within a project, with their corresponding due dates.
- TASK DEPENDENCIES:
- Relationships between tasks, where the completion of one task depends on another.
- RESOURCE ALLOCATION:
- Assign personnel or resources to specific tasks and milestones
- DURATION ESTIMATE:
- Assess the time required to complete each task and milestone.

Adjust Schedules:

- Progress Tracking
- Dependency Updates
- Resource Changes

Object-Oriented Python Solution:

*Class: Encapsulates project information, including timelines, tasks, and dependencies.

*Time class: Represents a project timeline, with a collection of milestones and tasks.

*Task class: Represents an individual task, including duration, dependencies, and resource allocation.

*Milestone class: Represents a milestone, with a deadline and a set of associated tasks

Algorithm

- Start

Initialize Project Scheduler

- Create Timeline

Input: Timeline ID

Output: New ProjectTimeline created

- Add Schedule

Input: Schedule Details

Output: Schedule added to ProjectTimeline

- Adjust Schedule

Input: Schedule ID, New Dates

Output: Schedule adjusted based on dependencies

- View Schedule

Input: Schedule ID

Output: Display schedule details

- Delete Schedule

Input: Schedule ID

Output: Schedule removed

- Repeat or End

PROGRAM:

```
class Schedule:
```

```
    def __init__(self, schedule_id,  
project_name, start_date, end_date):
```

```
        self.schedule_id = schedule_id
```

```
        self.project_name = project_name
```

```
        self.start_date = start_date
```

```
        self.end_date = end_date
```

```
    def __repr__(self):
```

```
        return
```

```
f"Schedule(id={self.schedule_id},  
project={self.project_name},  
start={self.start_date},  
end={self.end_date})"
```

```
class ProjectTimeline:
```

```
    def __init__(self, timeline_id):
```

```
    self.timeline_id = timeline_id

    self.schedules = {}

def add_schedule(self, schedule):
    if schedule.schedule_id in
self.schedules:
        raise ValueError(f"Schedule ID
{schedule.schedule_id} already exists.")

    self.schedules[schedule.schedule_id] =
schedule

def get_schedule(self, schedule_id):
    return self.schedules.get(schedule_id,
None)

def update_schedule(self, schedule_id,
start_date=None, end_date=None):
    schedule = self.get_schedule(schedule_id)

    if not schedule:
```

```
        raise ValueError("Schedule not
found.")

    if start_date:
        schedule.start_date = start_date

    if end_date:
        schedule.end_date = end_date

def delete_schedule(self, schedule_id):
    if schedule_id not in self.schedules:
        raise ValueError("Schedule not
found.")

    del self.schedules[schedule_id]

def __repr__(self):
    return
f"ProjectTimeline(id={self.timeline_id},
schedules={self.schedules})"

class ProjectScheduler:
    def __init__(self):
```

```
    self.timelines = {}

def create_timeline(self, timeline_id):
    if timeline_id in self.timelines:
        raise ValueError(f"Timeline ID {timeline_id} already exists.")
    self.timelines[timeline_id] =
ProjectTimeline(timeline_id)
```

```
def get_timeline(self, timeline_id):
    return
self.timelines.get(timeline_id, None)

def adjust_schedule(self, timeline_id,
schedule_id, start_date=None,
end_date=None):
    timeline =
self.get_timeline(timeline_id)

    if not timeline:
```

```
        raise ValueError("Timeline not  
found.")
```

```
    timeline.update_schedule(schedule_id  
, start_date, end_date)
```

```
    def __repr__(self):
```

```
        return
```

```
f"ProjectScheduler(timelines={self.timelin  
es})"
```

```
# Example usage

if __name__ == "__main__":
    scheduler = ProjectScheduler()

    # Create a project timeline
    scheduler.create_timeline("timeline_1")

    # Create a schedule and add it to the
    # timeline
    schedule1 =
        Schedule(schedule_id="schedule_1",
        project_name="Project A",
        start_date="2024-01-01",
        end_date="2024-01-31")
    scheduler.get_timeline("timeline_1").add_
    schedule(schedule1)

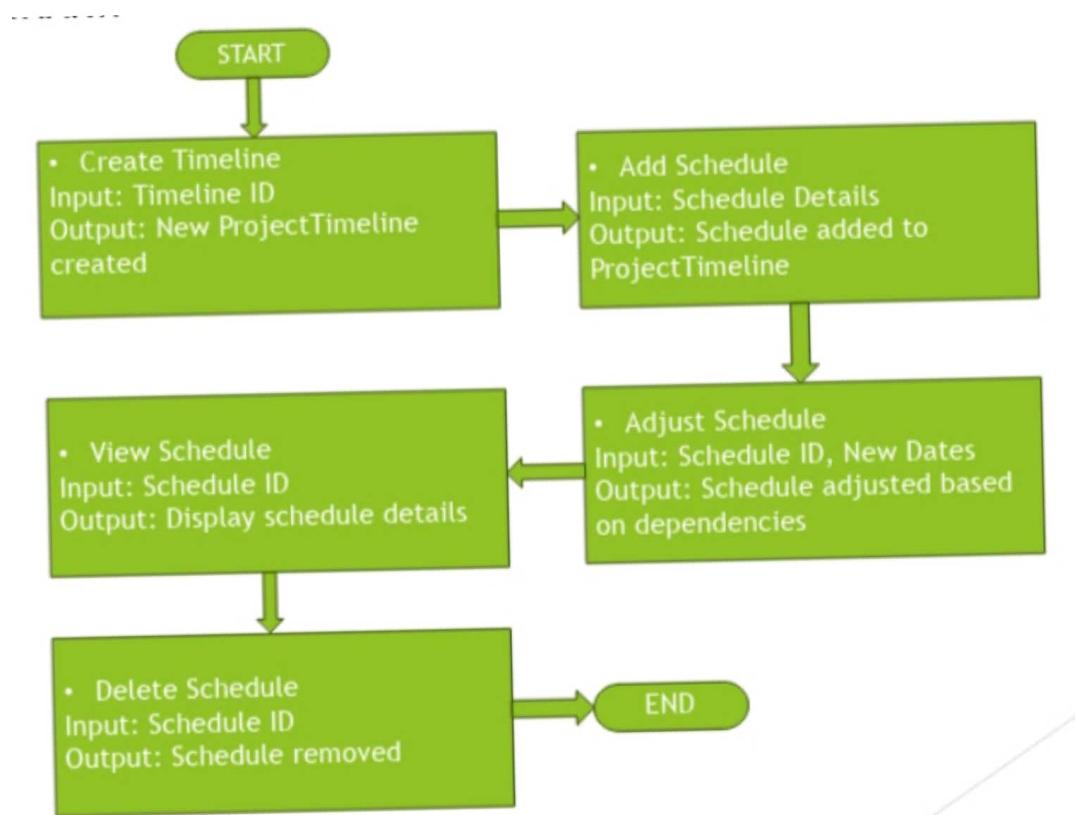
    # Retrieve and print the timeline
    print(scheduler.get_timeline("timeline_1"))
)
```

```
# Adjust the schedule
scheduler.adjust_schedule("timeline_1",
"schedule_1", end_date="2024-02-15")

# Retrieve and print the updated timeline
print(scheduler.get_timeline("timeline_1"))

# Delete the schedule
scheduler.get_timeline("timeline_1").delete_schedule("schedule_1")

# Print the timeline after deletion
print(scheduler.get_timeline("timeline_1"))
```



OUTPUT:

- ProjectScheduler(Timelines: [ProjectTimeline(ID: Timeline_1, Schedules: [Schedule(ID: Schedule_1, Name: Task 1, Start: 2024-09-01, End: 2024-09-05), Schedule(ID: Schedule_2, Name: Task 2, Start: 2024-09-06, End: 2024-09-10)]))])
- Adjusted Schedule: Schedule(ID: Schedule_1, Name: Task 1, Start: 2024-09-01, End: 2024-09-06)
- Deleted Schedule: Schedule(ID: Schedule_2, Name: Task 2, Start: 2024-09-06, End: 2024-09-10)
- ProjectScheduler(Timelines: [ProjectTimeline(ID: Timeline_1, Schedules: [Schedule(ID: Schedule_1, Name: Task 1, Start: 2024-09-01, End: 2024-09-06)]))])