BASAVARAJESWARI GROUP OF INSTITUTIONS

Ballari Institute of Technology & Management

AUTONOMOUS INSTITUTE UNDER VISVESVARAYA TECHNOLOGICAL UNIVERSITY JNANASANGAMA,

BELAGAVI 590018

INTERNSHIP

Report On

Team Formation Tool

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

Bachelor of Engineering

In

COMPUTER SCIENCE AND ENGINEERING

Submitted by

Praveen Kumar Naik

3BR22CS124

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

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NACC Accredited Institution*

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2023-2024

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the Internship entitled **"Team Formation Tool"** has been successfully completed by **Praveen Kumar Naik** bearing USN **3BR22CS124** a bonafide student of Ballari Institute of Technology and Management, Ballari. For the partial fulfillment of the requirements for the **Bachelor's Degree in Computer Science and Engineering** of the Ballari Institute of Technology & Management Autonomous Institute Under Visvesvaraya Technology University, Belagavi during the academic year 2023-2024.

Signature of Internship Co-ordinators

Mrs. MADHURI A
Assistant Professor ,CSE
&
Ms. SAMEENA YASMEEN
Supervisor ,CSE

Signature of HOD

Dr. R N KULKARNI
Professor & HOD,CSE

DECLARATION

I, **Praveen Kumar Naik,** second year student of Computer Science and Engineering, Ballari Institute of Technology, Ballari, declare that Internship entitled **Team Formation Tool** 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 fulfillment of the requirements for the award of the degree, Bachelor of Engineering in Computer Science and Engineering of the Visvesvaraya Technological University, Belagavi.

Date : 04 – 05 - 2024 **Signature of the Student**
Place : Ballari

ACKNOWLEDGEMENT

The satisfactions that a company the successful completion of my internship on " Team Formation Tool " 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 my respective coordinators "**Mrs.Madhuri A(Asst.prof,CSE) and Ms.Sameena Yasmeen (Supervisor,CSE)**" for their noble gesture ,support co-ordination and valuable suggestions given to me in the completion of Internship.

I also thank **Dr. R N Kulkarni,** HOD , Department of **Computer Science and Engineering** for extending all his valuable support and encouragement.

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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

This project aims to develop a Python application for a Team Formation Tool Proof of Concept (POC). The tool will facilitate the creation and management of player profiles, enable the creation of balanced team rosters based on player skills and statistics, and provide functionality to track changes and updates to team formations. The solution involves entity modeling with classes for Player and Team, implementing CRUD operations for player profiles, designing a team formation algorithm, implementing change tracking for team formations, and conducting unit testing using Python's unittest framework. The application will offer a comprehensive solution to efficiently handle team formation in various contexts.

CHAPTER-4

INTRODUCTION OF THE PROJECT

1. *Objective*: The project aims to develop a Proof of Concept (POC) for a Team Formation Tool using Python.

2. *Problem Statement*: The tool addresses the need for creating balanced team rosters based on player skills and statistics, while also providing functionality to manage player profiles and track changes in team formations.

3. *Approach Overview*: The project will follow a structured approach involving entity modeling, CRUD operations, algorithm design, change tracking, and unit testing.

4. *Entity Modeling*: Two main entities, Player and Team, will be modeled using classes to encapsulate relevant attributes and methods.

5. *CRUD Operations*: CRUD operations will be implemented to Create, Read, Update, and Delete player profiles, ensuring efficient management of player data.

6. *Team Formation Algorithm*: An algorithm will be designed to create balanced team rosters considering various factors such as player skills, positions, and team composition.

7. *Change Tracking*: The application will feature functionality to track changes and updates to team formations, maintaining a history of modifications over time.

8. *Unit Testing*: Unit tests will be conducted using Python's unittest framework to ensure the reliability and correctness of the application components.

9. *Expected Outcome*: The project aims to deliver a functional POC that demonstrates the feasibility and effectiveness of the Team Formation Tool in addressing the specified requirements.

CHAPTER-5

MODULE DESCRIPTION:

1. *player_profiles*: This module handles the CRUD operations for player profiles. It includes functions to create, read, update, and delete player records from the database.

2. *team_formation*: The team_formation module contains the algorithm for creating balanced team rosters based on player skills and statistics. It includes functions to assign players to teams, considering factors such as positions, experience, and overall team composition.

3. *change_tracking*: This module tracks changes and updates to team formations. It includes functions to log modifications made to team rosters, maintain a history of changes, and provide functionality for analyzing and reverting alterations if necessary.

4. *entity_classes*: The entity_classes module defines the classes for Player and Team entities. These classes encapsulate relevant attributes and methods for managing player profiles and team information.

5. *unit_tests*: The unit_tests module contains unit tests for the various components of the application, including entity classes, CRUD operations, team formation algorithm, and change tracking functionality. These tests ensure the reliability and correctness of the application's codebase.

6. *main*: The main module serves as the entry point for the application. It orchestrates the interaction between different modules, handles user input and output, and coordinates the execution of various functionalities to provide a seamless user experience.

7. *utilities*: The utilities module contains utility functions used across different modules of the application. These functions may include helper functions for data processing, validation, error handling, and other common tasks to improve code reusability and maintainability.

CHAPTER-6

Algorithm

Start:

1. Initialize the program.

Player Class:

2. Define a class named Player.

3. Initialize the class with attributes player_id, name, and skills.

Team Class:

4. Define a class named Team.

5. Initialize the class with attributes team_id and name.

PlayerDatabase Class:

6. Define a class named PlayerDatabase.

7. Initialize the class with an empty dictionary players.

8. Methods:

   - create_player: Create a new player entry in the database.
   - read_player: Read player information from the database.
   - update_player: Update player information in the database.
   - delete_player: Delete a player entry from the database.
   - display_players: Display all players in the database.

TeamDatabase Class:

9. Define a class named TeamDatabase.

10. Initialize the class with an empty dictionary teams.

11. Methods:

- create_team: Create a new team entry in the database.
- read_team: Read team information from the database.
- update_team: Update team information in the database.
- delete_team: Delete a team entry from the database.
- display_teams: Display all teams in the database.

Unit Tests:

12. Import the unittest module.

13. Define test cases for PlayerDatabase and TeamDatabase.

14. Set up initial conditions for testing (e.g., create sample players and teams).

15. Test each method of the databases (create, read, update, delete, and display).

16. Ensure that the expected behavior matches the actual behavior for each method.

Main Block:

17. Check if the script is being run as the main program.

18. Run the unit tests using unittest.main().

Exit.

CHAPTER 7

UNITTEST OUTPUT:

```
>>> %Run 'complete project 157.py'
 test_create_player (__main__.TestPlayerDatabase) ... ok
 test_delete_player (__main__.TestPlayerDatabase) ... ok
 test_display_players (__main__.TestPlayerDatabase) ... Player ID: 1, Name: John Doe, Skills: football
 Player ID: 2, Name: Jane Smith, Skills: cricket
 ok
 test_read_player (__main__.TestPlayerDatabase) ... ok
 test_update_player (__main__.TestPlayerDatabase) ... ok
 test_create_team (__main__.TestTeamDatabase) ... ok
 test_delete_team (__main__.TestTeamDatabase) ... ok
 test_display_teams (__main__.TestTeamDatabase) ... Team ID: 1, Name: A
 Team ID: 2, Name: B
 ok
 test_read_team (__main__.TestTeamDatabase) ... ok
 test_update_team (__main__.TestTeamDatabase) ... ok

 ----------------------------------------------------------------------
 Ran 10 tests in 0.034s

 OK
>>>
```

CHAPTER 8

CONCLUSION

In conclusion, the Team Formation Tool POC represents a significant step towards addressing the challenges associated with team formation, offering a scalable and adaptable solution for diverse applications.

CHAPTER-9

Bibliography:

1.GOOGLE
2.CHAT GPT
3.https://www.w3schools.com/c/index.php
4. Https://www.programiz.com/python-programming

GITHUB ACCOUNTS:

1. https://github.com/Praveen9964935712/BITM