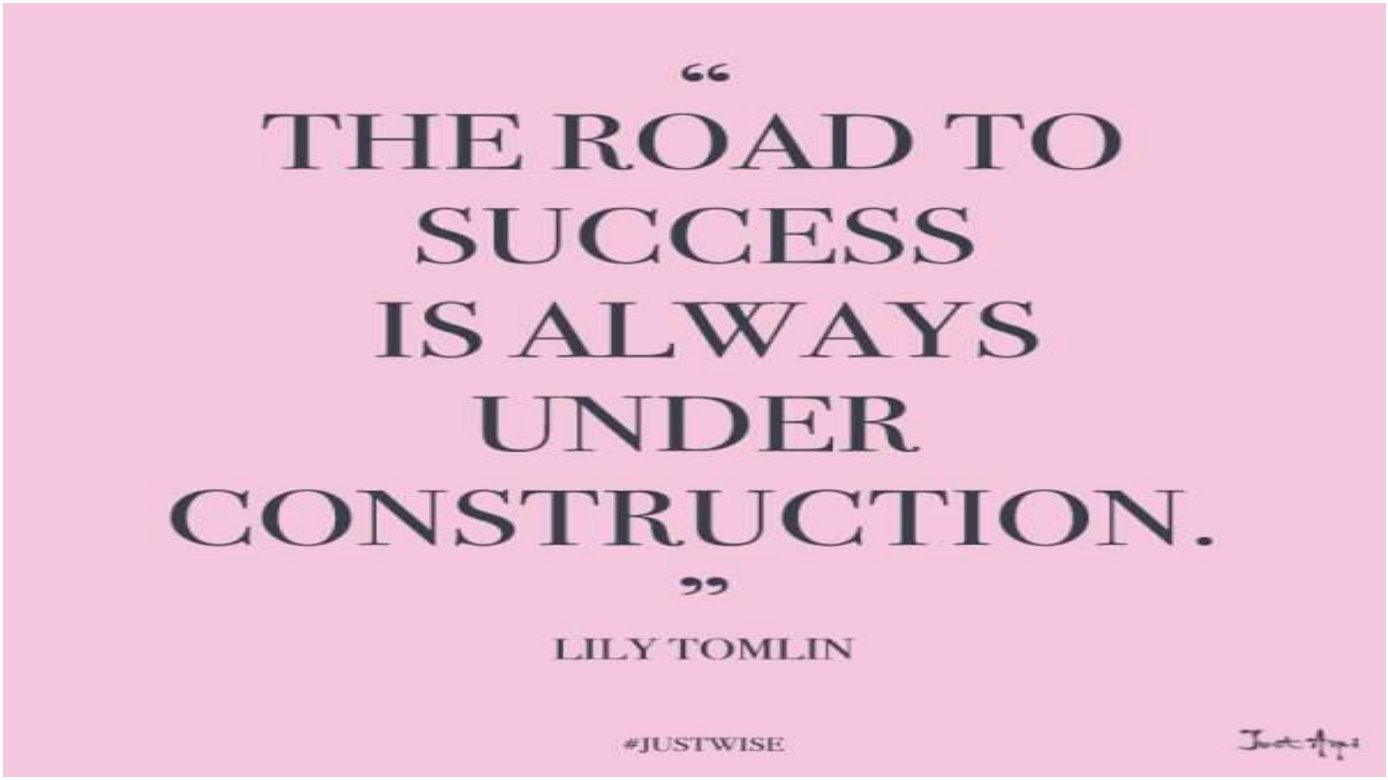

Show and Tell

Contents

Contents 2
1 Introduction – Show and Tell 3
2 What was the need and Why? 4
3 Modus Operandi 6
4 Samples 7
5 Outcome 12

1 Introduction – Show and Tell

Initial version

Technology (Programming) classroom lectures are delivered using "Show and Tell" method. Each concept is explained in the class by demonstrating developed programs or developing programs real time on a laptop connected to overhead projector.

Laptop is connected to Internet to facilitate problem solving and build that attitude by referring to online sites like stackoverflow.com.

Syntax or logical errors are purposely seeded, and students are expected to contribute to resolving them, thus encouraging a participative learning approach.

Version-2

Having ripped the fruits of Show and Tell method to teach Technology, it was further thought to enhance this to certain modules like “Software Project Management” and “Software Testing and Quality Assurance”

Based on the real-life application development case studies, Software Project Scheduling and Planning is demonstrated in the class. Risk Management including mitigation planning, Test strategy development, Test case development, Requirements to test case traceability gets demonstrated by motivating students to participate in the activity. Verification and Validation activities like reviews are conducted in the class where students are motivated to play different roles of relevant stakeholders.

Version-3

Integration of Generative AI in teaching “Technology” modules.

Faculties teaching “Technology” modules can take assistance from Integrated AI within various IDEs and seek numerous solutions to a single problem statement. Such IDEs generated code, documentation of code including Test Cases. This speeds up the ability of faculty in creating the program repository and demonstrating number of solutions to same problem statement.

2 What was the need and Why?

Problem Statement [Initial version]

It was noticed that "Teaching" pedagogy for "theory" classes of "Programming languages" was typically chalk and board sessions; Teachers used to teach concepts by writing relevant program statements on the boards and explain them; Students used to take notes and during **practical** sessions used to develop / write programs using installed IDEs, compile them and execute; This pedagogy posed number of problems

a) Chalk Board sessions slowed the coverage of the subject;
b) Demonstration was missing;
c) Problem solving was missing;
d) Engagement in class was minimal;
e) Interaction was done only with selected few;
f) Faculties were not hands on, which led to limited capability of faculty;
g) Lack of repository;

Problem Statement [Version -2]

The sessions on Software Project Management and Software Testing and Quality Assurance were PPT based lectures with minimal attempt to make them demonstration based. Lectures were theoretical with students failed to visualize the concepts like

a) ISO 9000, CMM certifications
b) Quality Control and Assurance
c) Verification, Validation and Testing
d) Project Management
e) Risk Management
f) Test Management
g) Defect Management
h) Service Management
i) Various metrices collated in life cycle

Problem Statement [Version -3]

Faculties teaching "Technology" typically limit themselves to a known solution to a given problem. This limits faculty's ability to demonstrate multiple ways to seek / resolve solutions. Once the repository is built, faculties resolve to stick to the same approach of taking similar set of programs limiting themselves to seek more examples or alternatives.

Integrating generative AI within IDE opens up an opportunity to eliminate the above limitations.

Using Integrated AI faculties depth and spread of solutions to a given problem multiplied leaps and bounds. For instance, one solution could be a simple non-recursive solution with more lines of code, whereas another solution of same problem could be using recursion. So, this increased the amount of repository getting discussed and covered in class for students, thus increasing the depth and spread of the given module.

3 Modus Operandi

Initial version

Every faculty responsible to teach Programming Language should

- Use equipped laptops with complete environment (IDE) installed;
- Demonstrate development life cycle
  - Code
  - Compile
  - Removal of syntax errors
  - Execution;
- Entire programming language should be taught in class with demonstration;
- Syntax and Logical errors should be purposely introduced and students should be challenged to identify and fix the same;
- Refer different online reference material (stackoverflow.com) and demonstrate problem solving.
- OpenS ource IDEs like CodeBlocks, Brackets should be installed.

Teachers should be ready with all the specimen programs; It is expected that execution path of each and every demoed program is discussed;

Version-2

Faculty responsible for teaching SPM and STQA modules should

- Create number of real life case studies
  - Existing mini-projects decided by students could be considered for discussions
- Motivate students to capture "Requirement" through discussions where faculty can play a role of customer point of contact / Business owner.
- Demonstrate the creation of Requirements Specification using appropriate template.
- Demonstrate the creation of Test Strategy / Plan document
- Demonstrate the creation of Test Cases using the captured requirements

- Demonstrate V&V process for the artifacts created
- Capture Risks and discuss mitigation
- Demonstrate creation of Project schedule [typically do it for some mini project identified by students.

4 Samples

Initial Version

Below table provides a list of programs demonstrated / developed to conduct a lecture of Java for Semester-I (MCA); Please note that this is not an exhaustive list and the detailed list of programs could be found on OneDrive.

Sub Folder Name	Program Name	Description
Tutorial_01	Ex0101.java	Creation of a class from .java file; Creation of two classes from single .java file
	Ex0201.java	Object creation and invoking instance method
	Ex0203.java	Static methods
	Ex0204.java	Invoking static methods
	Ex0205.java	Strings in java, string concatenation
	Ex0206.java	Variables and using System.out.println
	First.java	Creating empty classes
	First_01.java	Significance of main method in the class
	Second_01.java	Main method and main method (special method)
Tutorial_02	Dog_01.java	Instance variables, class, creating an object
	Dog_02.java	Instantiating an object and initializing instance variables to some values
	Dog_03.Java	Creating multiple objects to same class
	Dog_04.java	Creating objects, initializing instance variables and printing values of instance variables
	Dog_05.java	Creating objects, invoking instance methods
	Dog_06.java	Creating objects, invoking instance methods
	Dog_07.java	Reference of one object to another
	Dog_09.java	Concept of constructors
	Q0019.java	Scope of variables

	Q0020.java	Scope of variables
	Q0021.java	Scope of variables
	Q0022.java	Static vs Instance(non static)
Tutorial_03	Animal.java	Inheritance concept
	Animal_01.java	Inheritance (method overriding)
	Animal_02.java	Use of super
	Animal_03.java	Method overloading
	Ex0401.java	Inheritance
	Q0026.java	Multiple Inheritance (grand-child, child, parent)
	Q0027.java	Overriding, overloading and multiple inheritance
	Q0028.java	Overriding, overloading and multiple inheritance
	Student.java	Creating object (display instance variable without initializing to any values)

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Below table provides a list of programs demonstrated / developed to conduct a lecture of Mobile Application Development for Semester-III (MCA); Please note that this is not an exhaustive list, but path of the same are provided on GitHub repository

Mobile Application Development

Program App Location	Program name	Description
https://github.com/kavitakamat175/AndroidProjects/tree/main/CalculatorApp/app/src/main	CalculatorApp	Program to create Simple Calculator
https://github.com/kavitakamat175/AndroidProjects/tree/main/ConstraintLayoutDemo/app/src/main	ConstraintLayout Demo	Program to demonstrate Constraint Layout i.e. ViewGroup
https://github.com/kavitakamat175/AndroidProjects/tree/main/CustomViewDemo/app/src/main	CustomViewDemo	Program to demonstrate user defined View
https://github.com/kavitakamat175/AndroidProjects/tree/main/DatabaseDemo/app/src/main	DatabaseDemo	Programs to demonstrate database handling in SQLite

https://github.com/kavitakamat175/AndroidProjects/tree/main/FragmentLifeCycle/app/src/main	FragmentLifeCycle	Program to demonstrate Fragment Life Cycle.
https://github.com/kavitakamat175/AndroidProjects/tree/main/FirebaseDemoApp	FirebaseDemoApp	Firebase database NoSQL database
https://github.com/kavitakamat175/AndroidProjects/tree/main/LoginRegistration/app/src/main	Login and Registration Page App	Designing Login and registration pages and doing validation
https://github.com/kavitakamat175/AndroidProjects/tree/main/ImplicitIntents/app/src/main	Implicit Intents	Navigating among activities using intents
https://github.com/kavitakamat175/AndroidProjects/tree/main/ScrollViewDemo/app/src/main	ScrollView	Demonstration of scroll view and vertically scrolling the main activity
https://github.com/kavitakamat175/AndroidProjects/tree/main/DateTimePickerDemo/app/src/main	DateTimePickerApp	Call DatePickerDialog and TimePickerDialog to select date and time
https://kesorgin.sharepoint.com/:f:/s/MCA2023-25Batch/EkXVUTZNm81PsQUN9wBij1EB2_KJ8xmz5t5lMbRqflguYA?e=DcwFP8	ContextMenuApp	Demonstration of menus in android
https://kesorgin.sharepoint.com/:f:/s/MCA2023-25Batch/EgbG_j1Sr3FHnPo-OBeuSU8BpftB9DNUK5n42RsVxNLcYg?e=xxqF4x	DialogsDemo	AlertDialog app

Below table provides a list of programs demonstrated / developed to conduct a lecture of Angular for Semester-II (MCA); Please note that this is not an exhaustive list, but path of the same are provided on OneDrive

Angular Programs

Program App Location	Program name	Description
https://kesorgin.sharepoint.com/:f:/s/MCA2023-25Batch/EltSaXJBkoVMsNcDD-cUWB8BglDob6Tg8JI4DWpaqee4TQ?e=HOB7sV	AngularApp	Multiple web pages like contact us, about us, and many other things demonstrated in this website

https://kesorgin.sharepoint.com/:f:/s/MCA2023-25Batch/EsZLPGnFdWVCm1GRz55_HlsBQyikhowz1f3kCAPI6R7_xw?e=YENSpP	Dependency Injection	Dependency Injection and Services are interrelated explained here in angular
https://kesorgin.sharepoint.com/:f:/s/MCA2023-25Batch/EknFk1P9VBdCnJzYDZDX3IIBBAoeKc3dZdmD1LqIvipmAg?e=ZffnDK	Form Validation	Web app to check validations on form.
https://kesorgin.sharepoint.com/:f:/s/MCA2023-25Batch/EqFj-mp7sk5Os83V_RCFHnMBjYXtCK0Y8r8WiZ87yEM-JA?e=zug4AF	QueAns	University Questions solved in this web app

Version 2

Below is a specimen Case Study drafted by the faculty for the discussion and demonstration purpose.

Example Case Study

Development of Rejection Analysis System for a Plastic component manufacturing Unit;
Plastic Component manufacturing unit comprises of Plastic blow moulding machines which are used to produce Plastic boxes, vessels of different sizes and colors; As a manufacturing process, Plastic powder and color pigments are inserted in the blow moulding machine after fixing an appropriate mould. Based on the mould relevant shaped/sized box, vessel is produced.
Machine is operated by operators and it produces few hundred pieces per hour.

A Quality Control department within the manufacturing unit is responsible to check the quality of each and every component produced by blow moulding machines; There are certain parameters identified by QC department and accordingly every component is verified; If the components do not pass the parameter, the component is rejected and taken out. For every type of rejections there is a separate container in which rejected component for that reason is taken out. All the rejected components are sent back for recycling. Shredding machine shreds the component into fine powder and this powder is reused again for production;

A computerized system needs to be developed which will capture the reasons of rejections; A report needs to be generated everyday which will produce reason wise scrap generated in KGs;

Following User Interfaces are required

a) *Maintenance (Add/Update/Inquire) of Component Master – comprising of basic fields like component code, color code, description, weight (in gms), etc*
b) *Maintenance of color master – fields like color code, description*
c) *Maintenance of rejection code – Rejection code, description of rejection*
d) *Enter transactions by QC department after QC activities*
    a. *Component code, color code, Rejected (Y/N), if rejected enter the rejection code;*
e) *Produce report at the end of day to print following information*
    a. *Component / color wise Summary in terms of numbers rejected due to different reasons*
    b. *Rejection Reason wise summary of total cumulative weight*

Demonstration of creating a Test Plan for above Case study

Demonstration of creating Test Cases for above Case study.

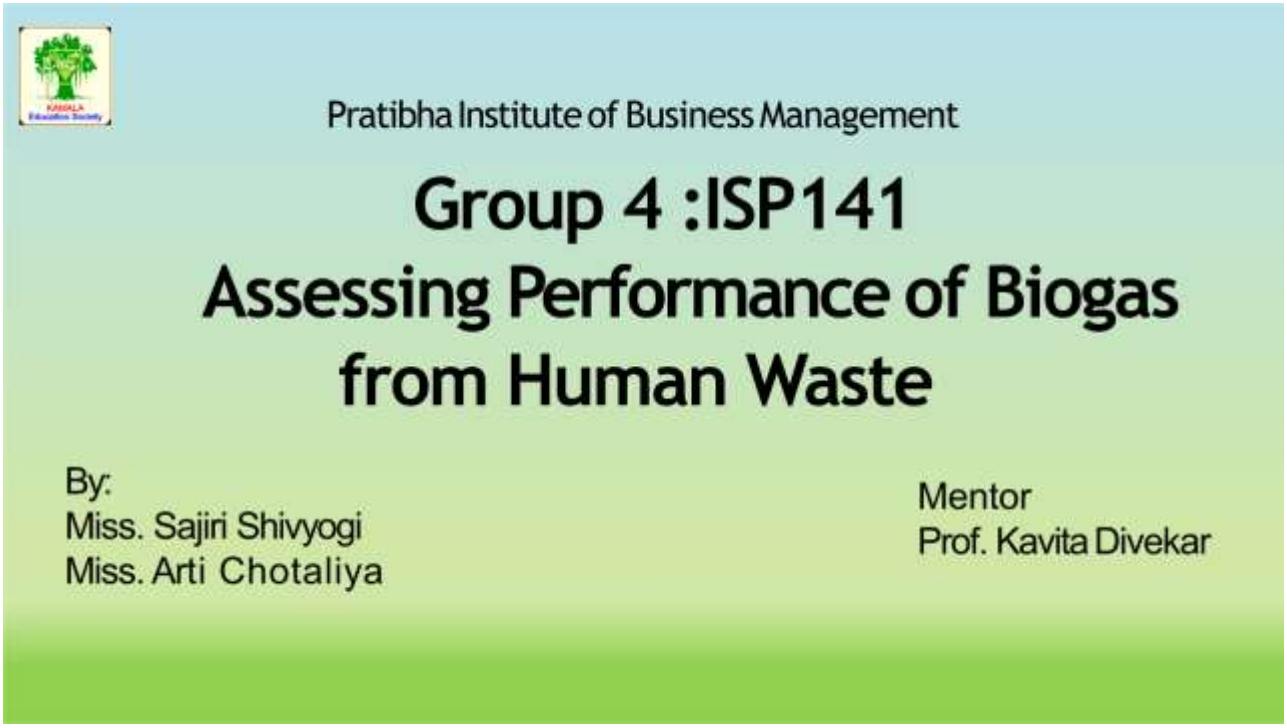
Version 3

Below are video clips of specimen integration of Generative AI with IDE.

5 Outcome

- **Sessions / Lectures are more engaging;**
- **Improved skills and delivery capabilities of faculties**
- **Improved skills of students**
    - **Participation in State/National level Codethons/Hackthons, competitions**
    - **Increased Contribution of students on online discussion forums**
    - **Students enhanced**

Student presenting below topic at SMART PCMC Innovation Ideas at PCCOE Hackthon.



Students winning at SMART PCMC Innovation Ideas at PCCOE Hackthon

Innovate for Smart Pimpri Chinchwad

Jointly organized by
Pimpri Chinchwad Municipal Corporation (PCMC)
Pimpri Chinchwad Smart City Limited (PCSCL)
and
PCET's Pimpri Chinchwad College of Engineering (PCCoE)

2nd Runner Up

This is to certify that Mr./Ms. Sajini Milind Shivyogi & Team
has presented an idea on Assessing Performance of Biogas from Human Waste and
proudly stood as **2nd Runner Up** of "**Innovate for Smart Pimpri Chinchwad**" jointly organized by
Pimpri Chinchwad Municipal Corporation, Pimpri Chinchwad Smart City Limited and
PCETs Pimpri Chinchwad College of Engineering, Pune on 26th, September 2019.

Dr. Ajay M. Fulambarkar
Principal, PCCoE

Shravan Hardikar (IAS)
Municipal Commissioner, PCMC
CEO & Director, PCSCL

Receiving first Prize at Kaveri Hackathon

Special Recognition at Hackthon in Zeal Institute

ZEAL COVID-19 HACKATHON
(NATIONAL LEVEL STUDENT COMPETITION)

CERTIFICATE
OF SPECIAL RECOGNITION

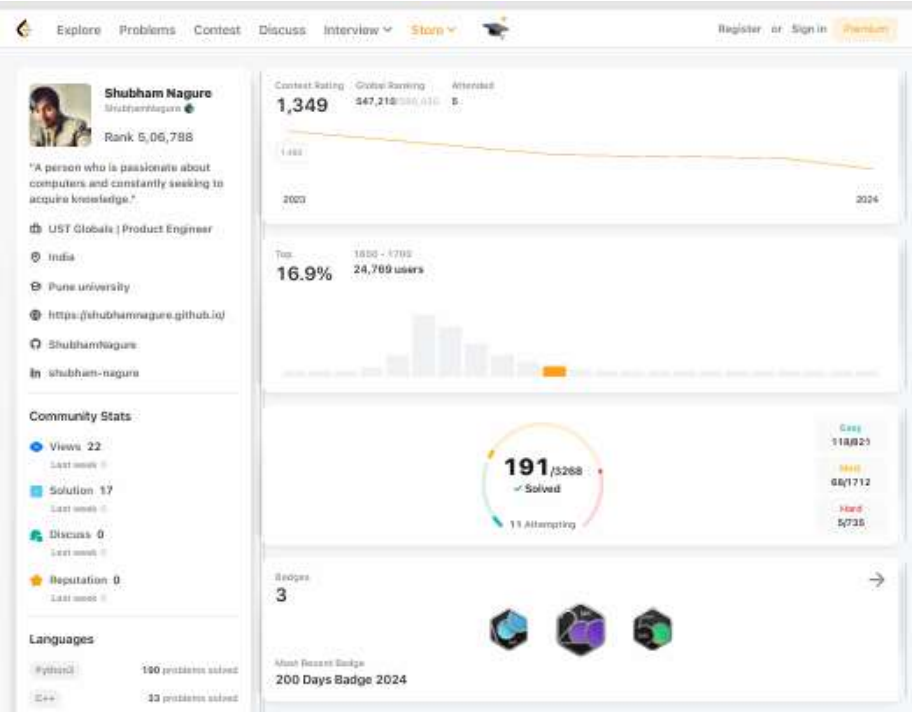
"Nikita Joshi,"

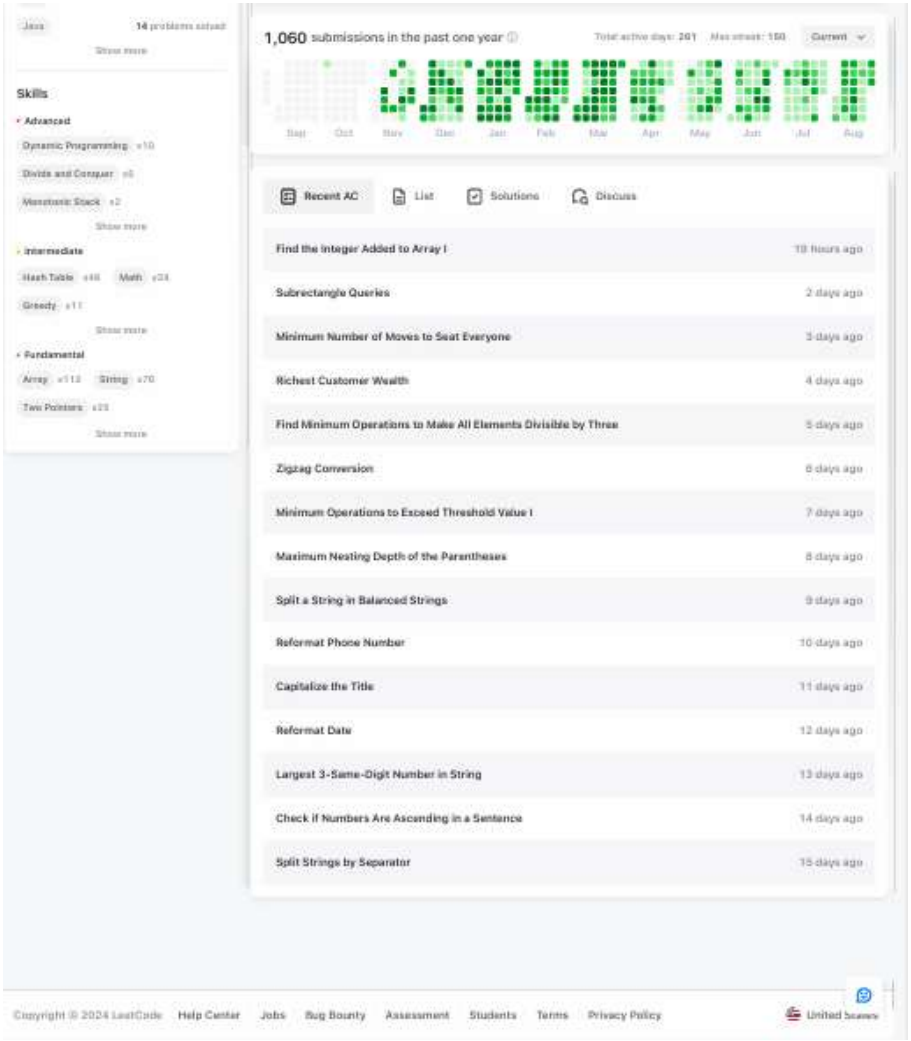
In recognition of SPECIAL ACHIEVEMENT for His / Her work
in the ZEAL COVID-19 HACKATHON (MANAGEMENT Stream) NATIONAL LEVEL STUDENT
COMPETITION held during 04th -08th June 2020 organized by ZEAL INSTITUTES, Pune.

Dr. Sachin Chavan
Director
ZIBACAR, Pune

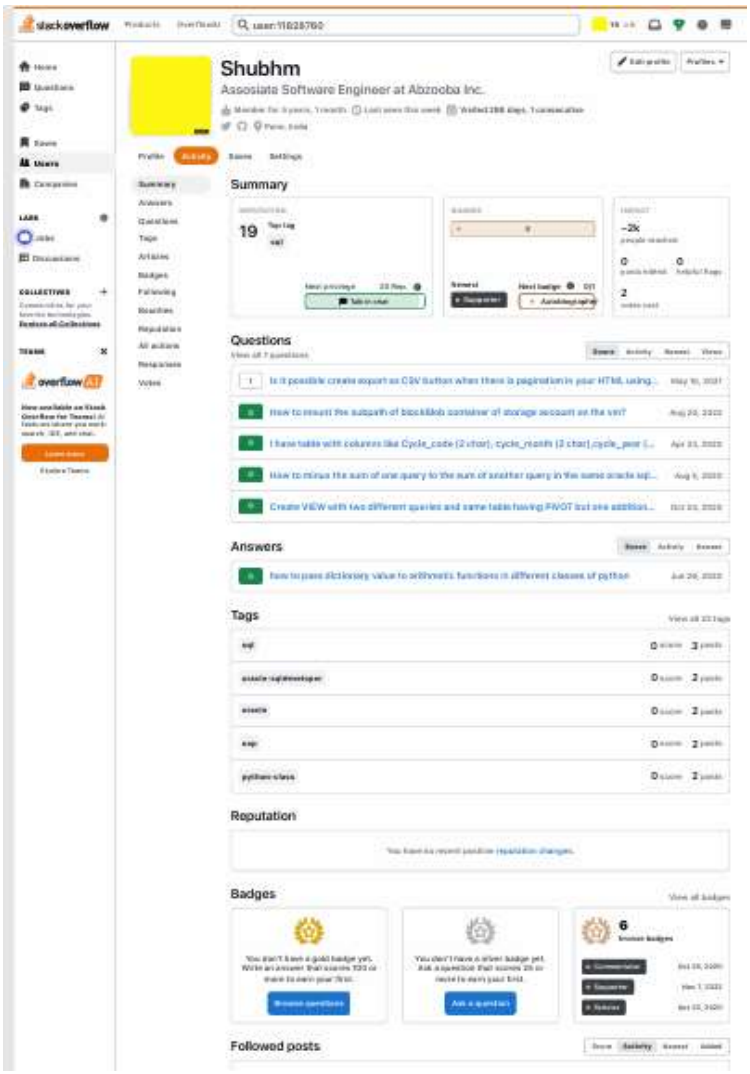
Shri. Jayesh Katkar
Secretary
Zeal Education Society, Pune

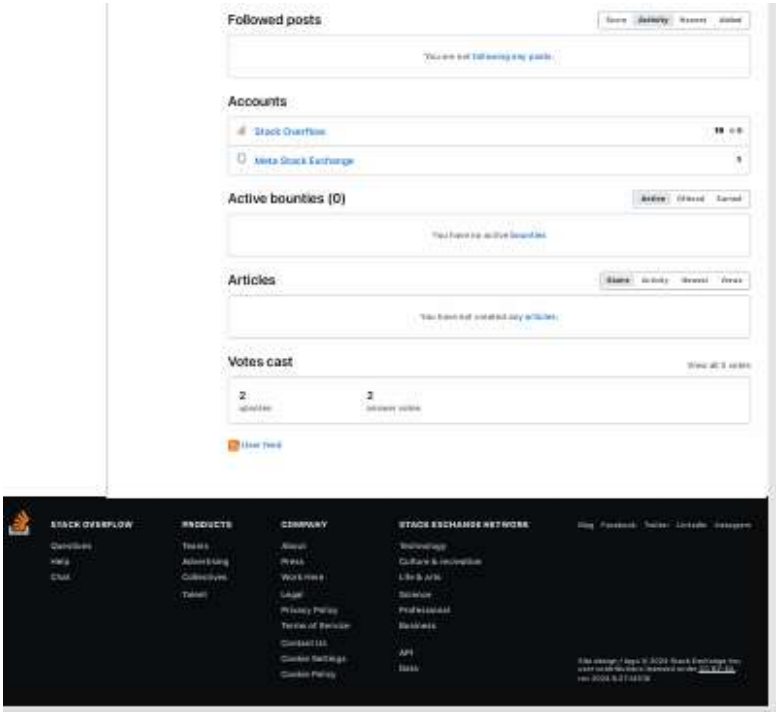
Student contributing to LeetCode



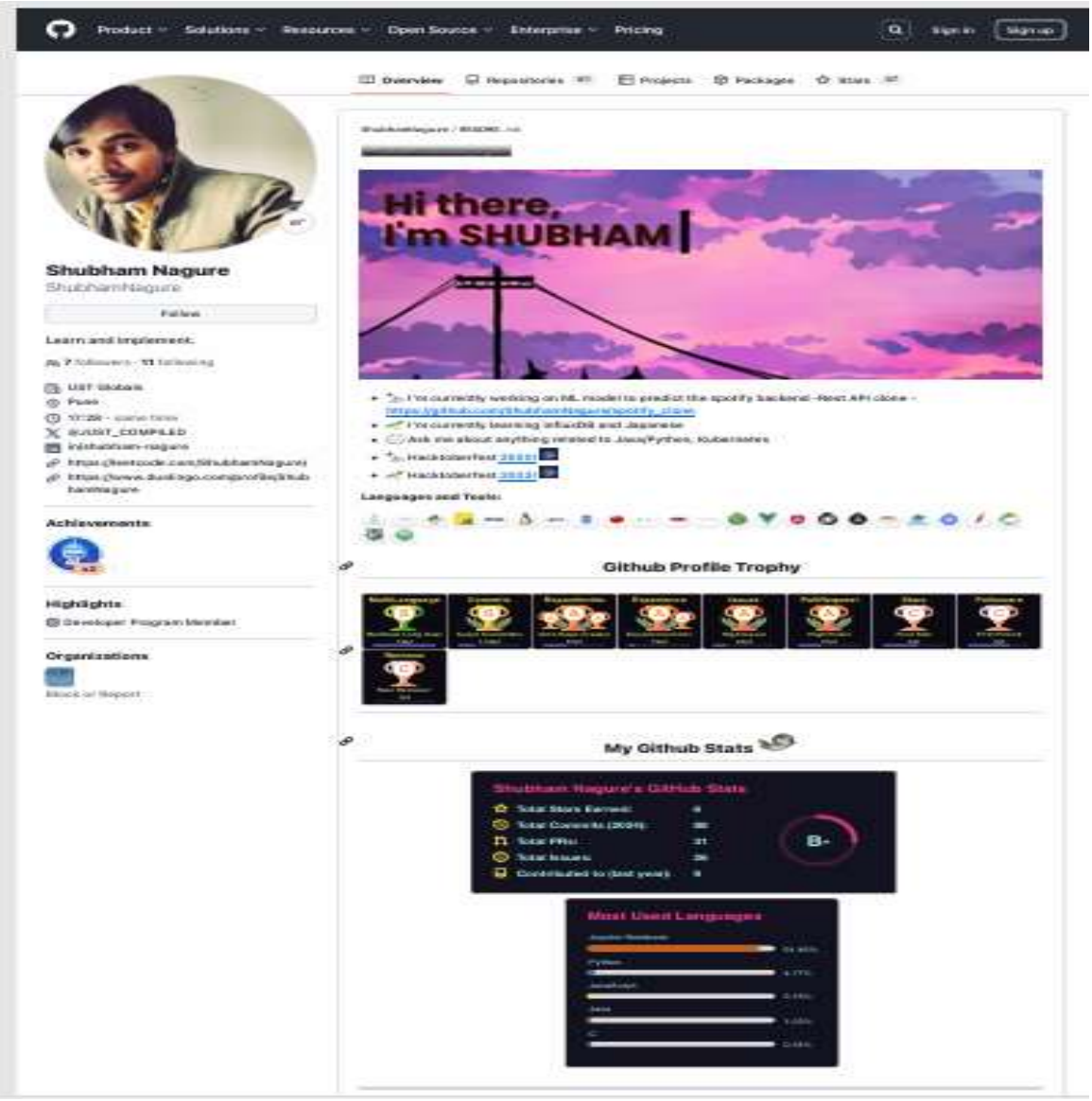

1,060 submissions in the past one year
Skills
Recent AC
List
Solutions
Discuss
Find the Integer Added to Array I
Subrectangle Queries
Minimum Number of Moves to Seat Everyone
Richest Customer Wealth
Find Minimum Operations to Make All Elements Divisible by Three
Zigzag Conversion
Minimum Operations to Exceed Threshold Value I
Maximum Nesting Depth of the Parentheses
Split a String in Balanced Strings
Reformat Phone Number
Capitalize the Title
Reformat Date
Largest 3-Same-Digit Number in String
Check if Numbers Are Ascending in a Sentence
Split Strings by Separator

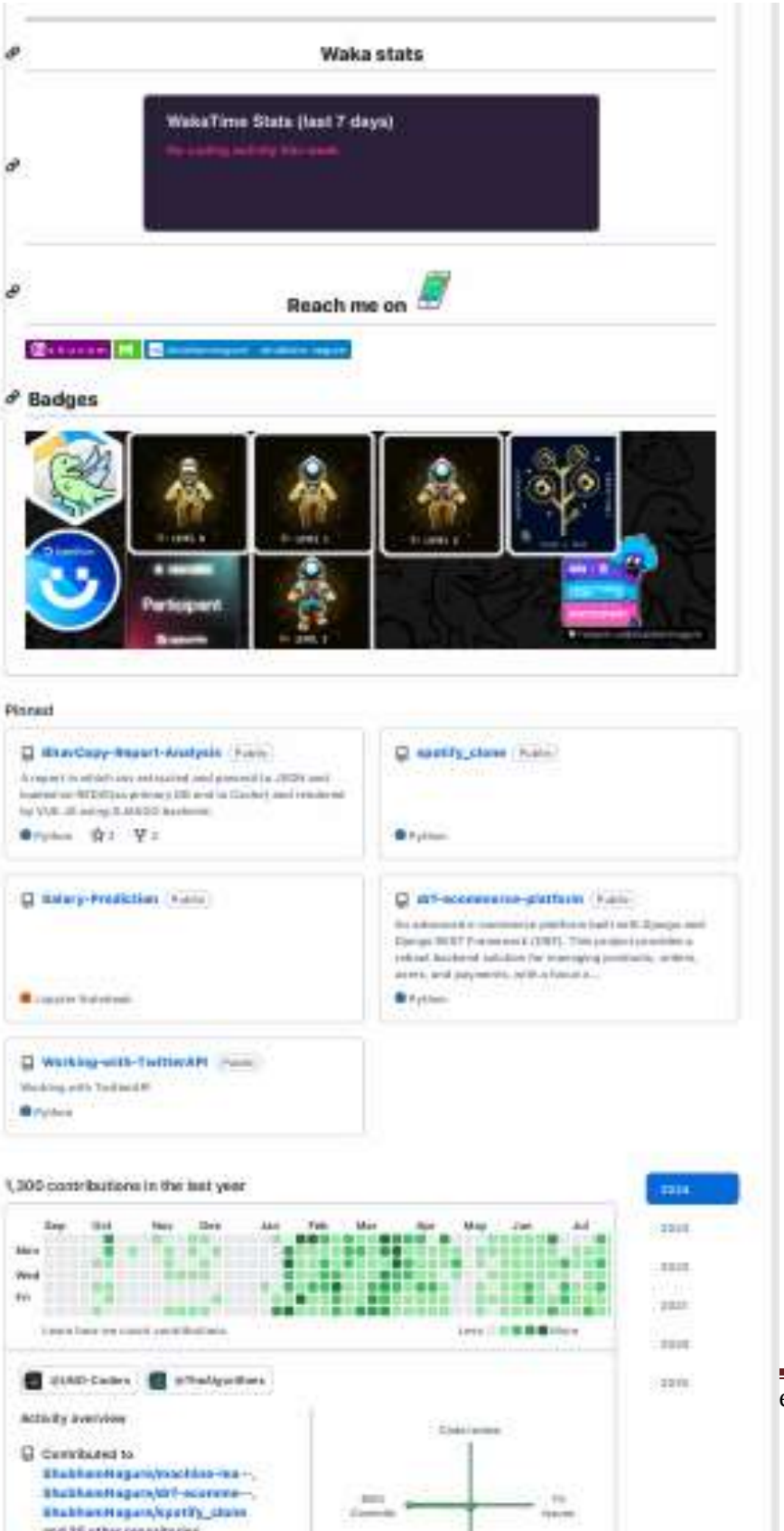
Student contributing to Stackoverflow.com




Followed posts
Accounts
Active bounties (0)
Articles
Votes cast

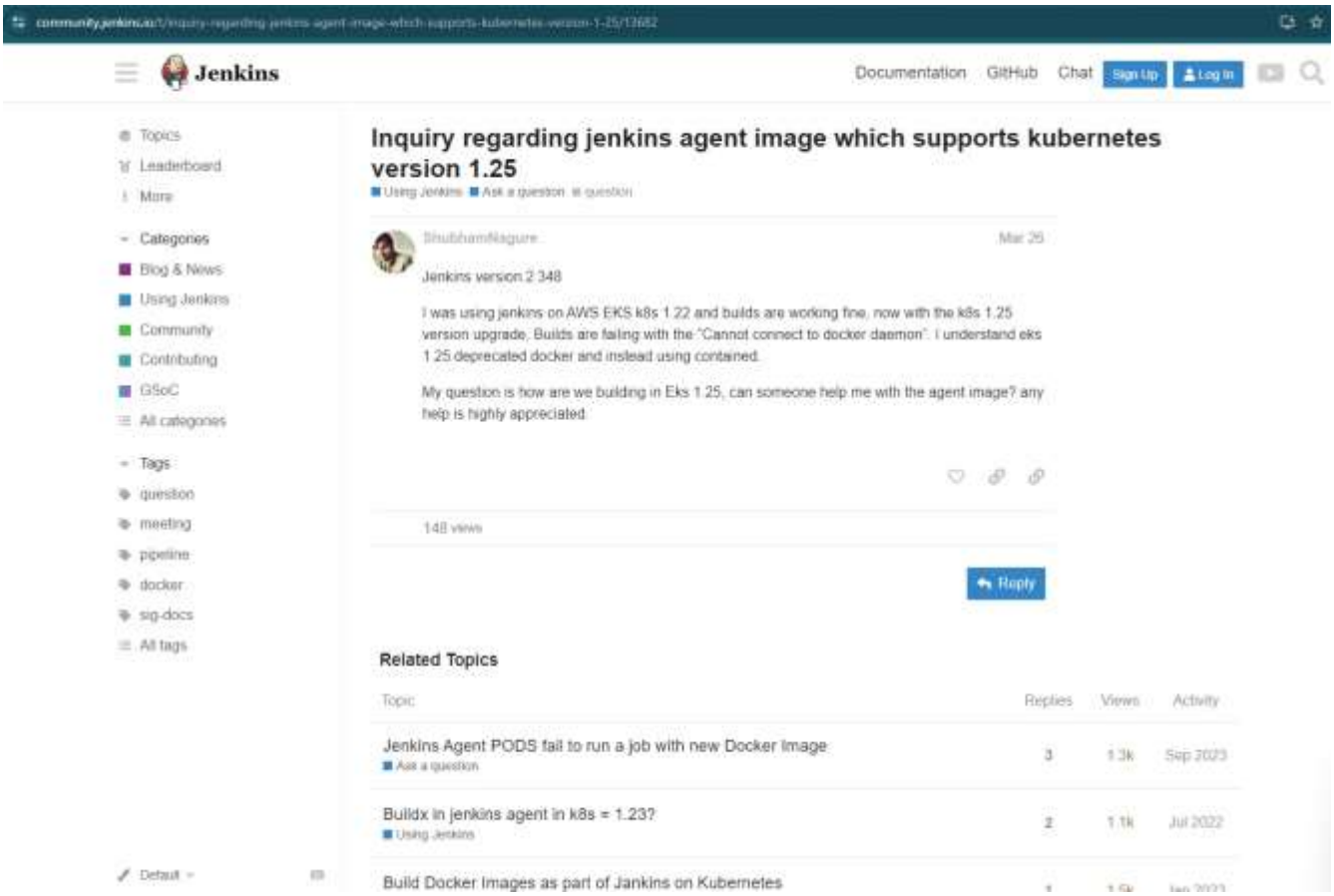
Specimen Student Repository on GitHub




Waka stats
WakaTime Stats (last 7 days)
Reach me on
Badges
Participant
Pinned
spotify_clone
Salary-Prediction
Working-with-TwitterAPI
1,300 contributions in the last year
Activity overview
Contributed to

Contribution activity

Student contribution on Jenkin's Community



- **Improved Quality of Projects [IVth and VIth Semester]**

Positive feedback from Employer like Kaldin

Kaldin Solutions

Date: 30 Aug 2024

To,
Head of Department, MCA
Pratibha Institute of Business Management
Chinchwad, Pune, Maharashtra

Dear **Manish**,

I am writing to express our sincere appreciation for the exceptional work being done by the students we recently hired from the MCA department of **Pratibha Institute of Business Management, Chinchwad.**

The commitment, skill, and professionalism they have demonstrated in their roles are truly commendable. It is evident that the education and training they have received at your esteemed institution have played a significant role in shaping their abilities. Their performance reflects the high standards of academic excellence and practical knowledge imparted by your department.

We value the collaboration we have established with **Pratibha College** and look forward to continuing this fruitful relationship in the future. Please extend our gratitude to your faculty and administration for their dedication to nurturing such talented professionals.

Thank you once again for your continued support and for providing us with such outstanding talent.

Sincerely,

KALDIN SOLUTIONS

Sri Bandaru,
Product Delivery Manager

Gate 3, Dwarkadheesh
Pimple Soudagar
Pune - 411027

+91 20 27206319
Kaldin.se...

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