

# **Software Engineering Project (BSCS3001)**

## **Milestone 2 – User Interfaces**

Submitted by **Team 15**

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# Software Engineering Project

## Online Learning Portal - Seek++

Team 15



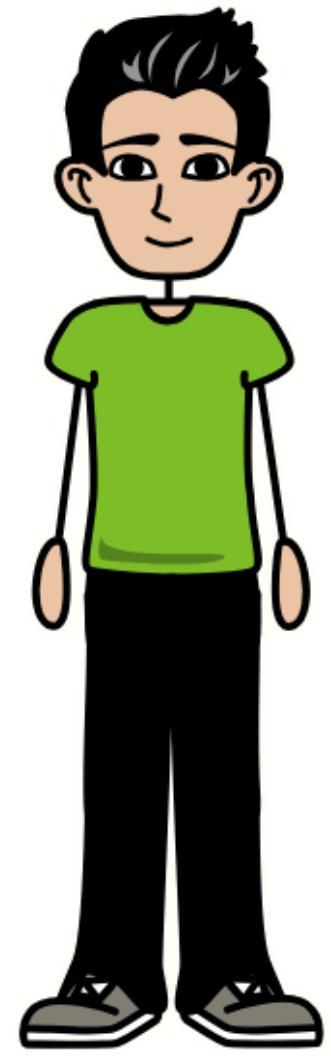
# Introduction



This presentation looks at how we can integrate GenAI features into our learning portal. By adding these AI tools, we're aiming to make online learning better, more engaging, and tailored to each student's needs.



# Characters of the Story



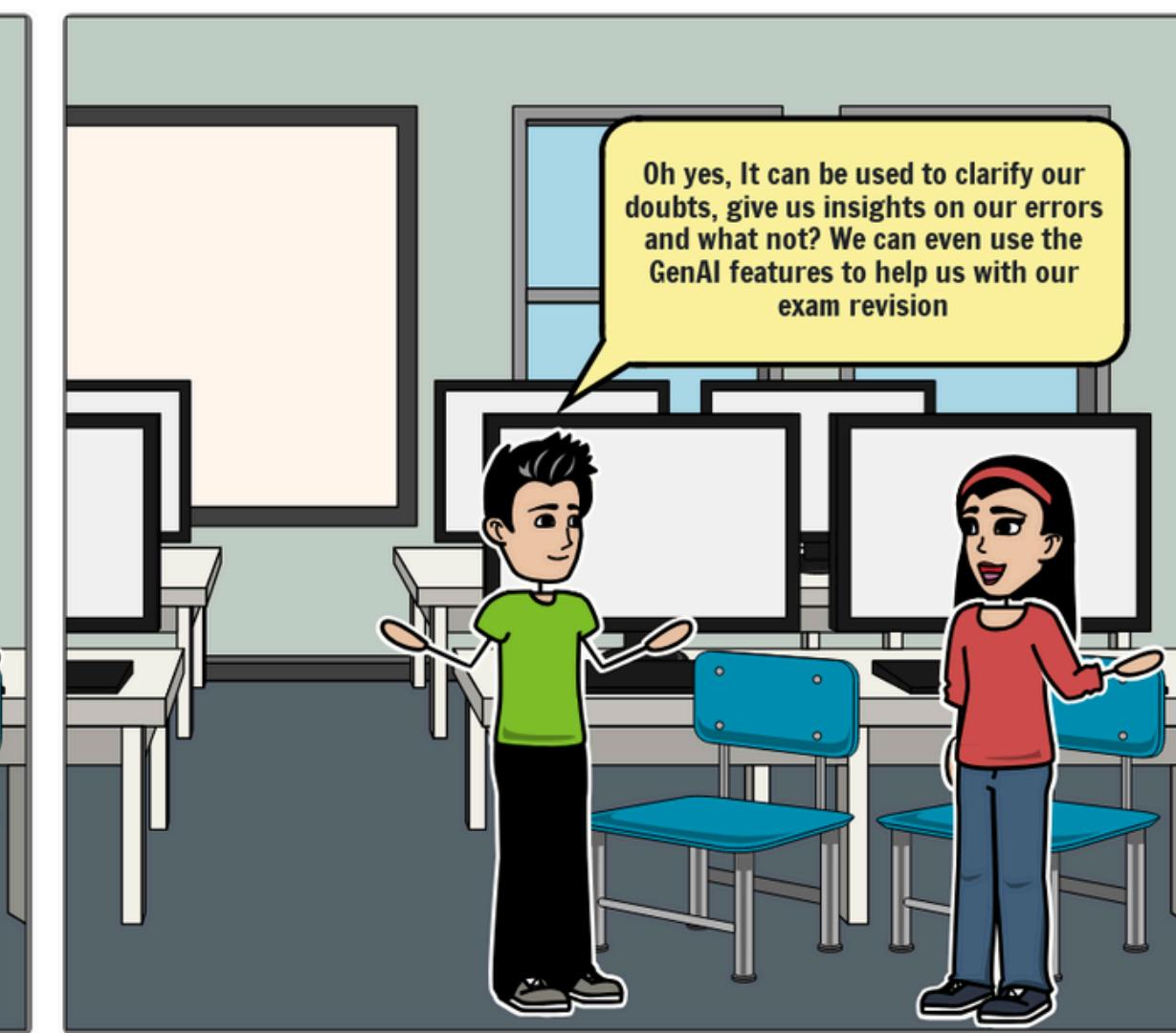
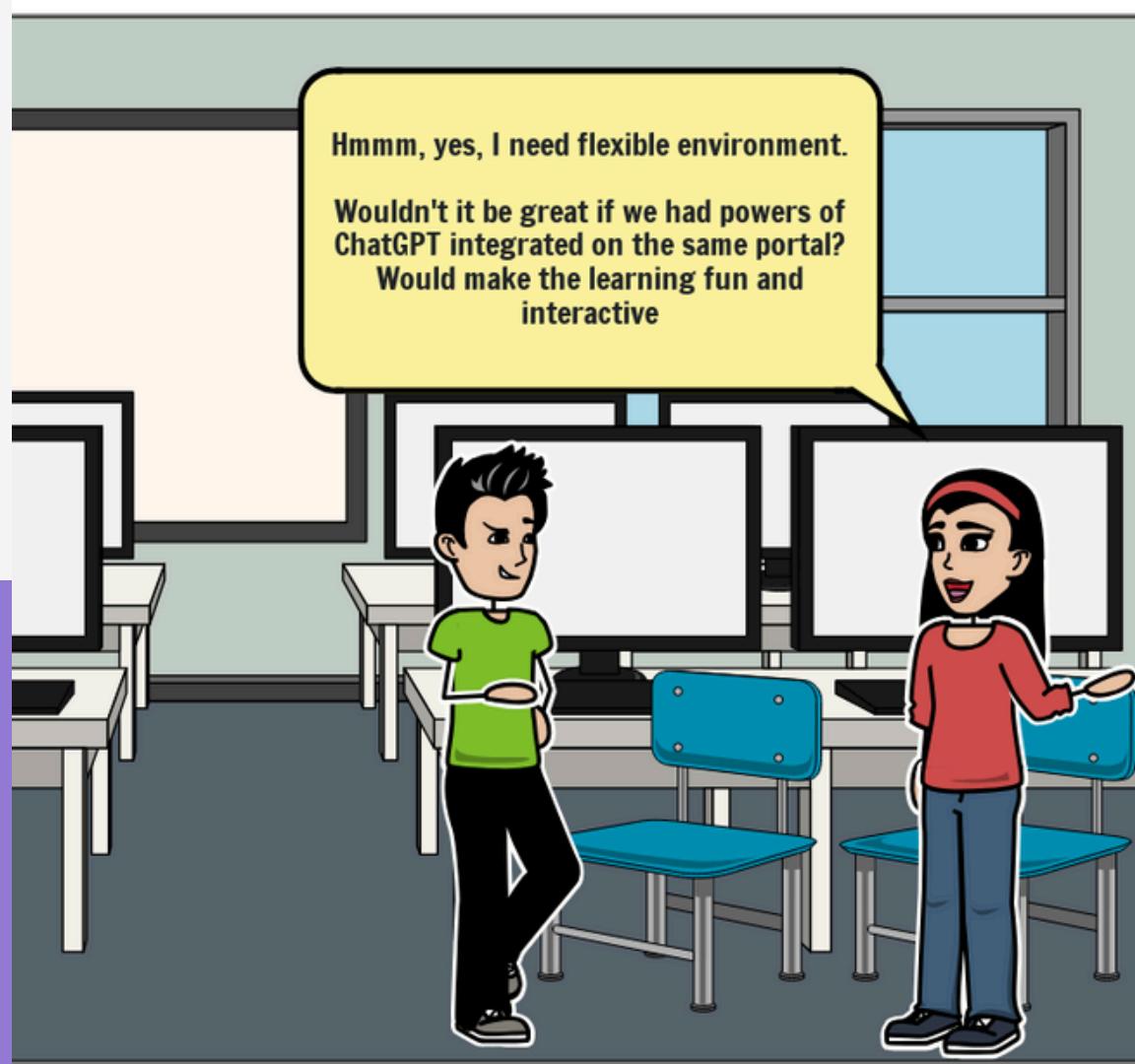
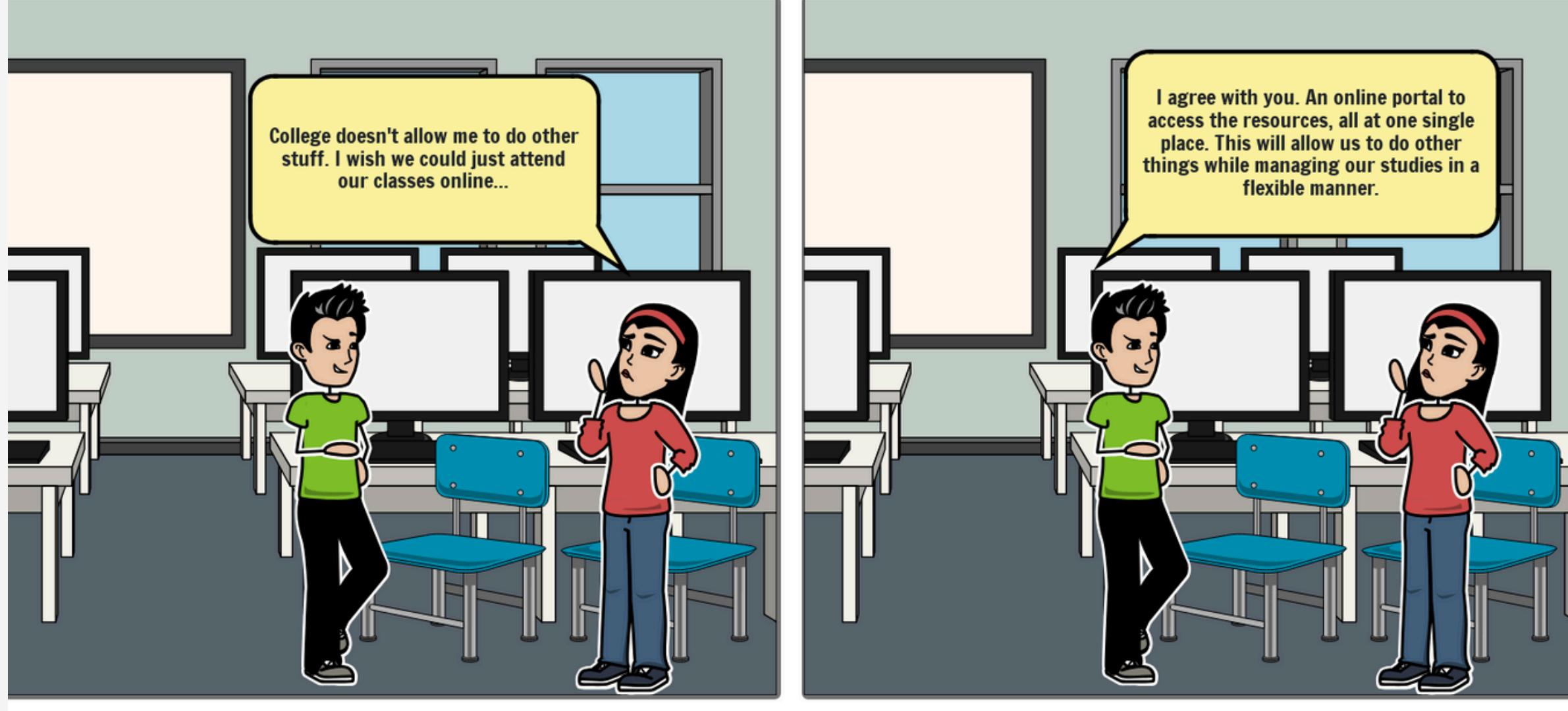
**Sachin**

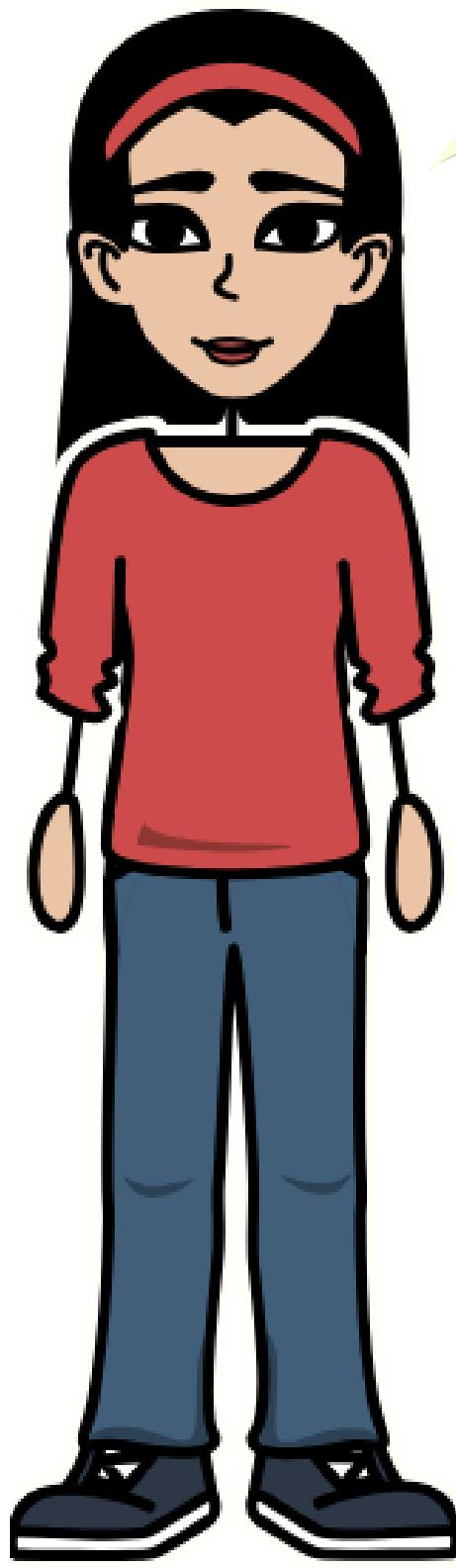


**Rashmi**

**Both of them are students pursuing an online degree while managing their other commitments.**

# The Setting of the Story





I need a summary  
of the video  
lectures for when I  
don't have time to  
go through the  
content

The screenshot shows the SEEK Portal application interface. At the top, there is a navigation bar with a calculator icon, an 'Ask AI' button, and a 'Course Details' sidebar listing weeks 1 through 12. The main area features a video player with a play button, a progress bar at 0:00/3:53, and a transcript box below it. The transcript contains placeholder Latin text. To the right of the video player is a 'Scratchpad' section with instructions for writing notes. A red box highlights the 'Video Summary (AI Generated)' section, which displays a summary of the video content about Python lists, dictionaries, and tuples. A cursor arrow points towards this summary box.

SEEK Portal

Calculator Ask AI

Course Details ▾

- Week 1 ▾
- Week 2 ▾
- Week 3 ▾
- Week 4 ▾
- Week 5 ▾
- Week 6 ▾
- Week 7 ▾
- Week 8 ▾
- Week 9 ▾
- Week 10 ▾
- Week 11 ▾
- Week 12 ▾

Scratchpad

You can write your notes here and save them in the video lectures. They can be saved and accessed later on whenever required.

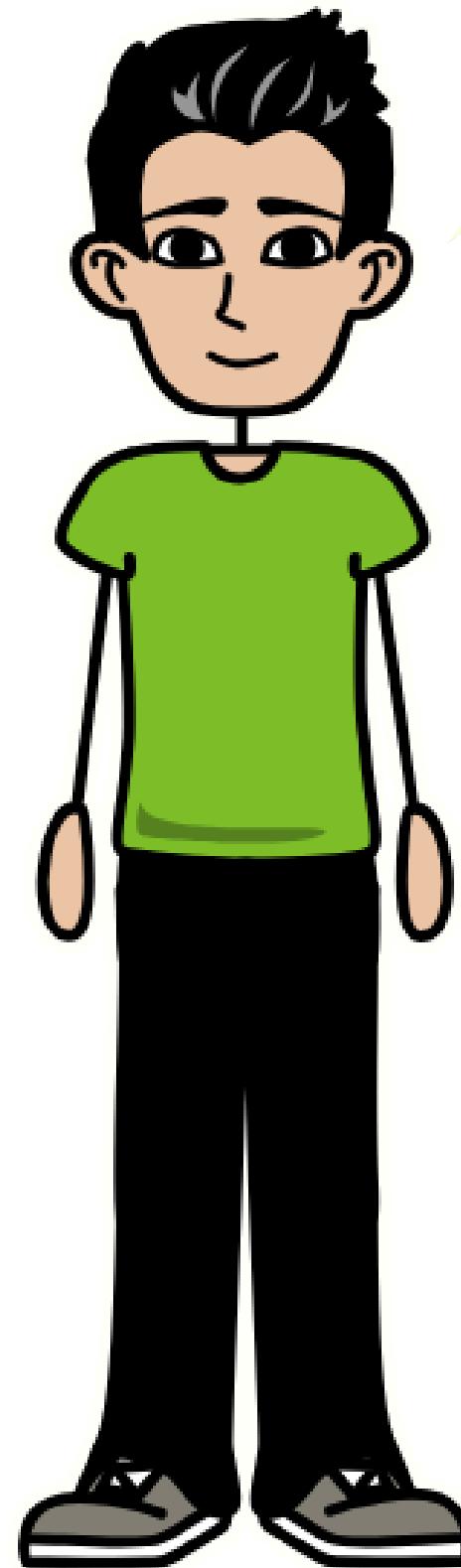
Save Clear

**Transcript**

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum. Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit.

**Video Summary (AI Generated)**

This video talks about the concept of lists, dictionaries and tuples in Python.



I want a detailed analysis on the errors in my code

The screenshot shows the SEEK Portal interface. At the top left is a calculator icon and at the top right is an "Ask AI" button. On the left, a sidebar lists "Course Details" and weeks from 1 to 12. The main area displays a "PA Question - 1" with the following text:  
Make a list **fruits** where the elements are: apple, banana, kiwi, orange, pineapple.  
Display the last element of the list.

Below the question are three buttons: "Code", "Error Analysis" (which is highlighted with a red border), and "Solution". A tooltip message from the AI states: "AI: In the code that you have written, you did not put the elements of the list between quotes to form a string. Also, you missed one element from the question, to include Check that and try again." At the bottom of the main panel is a link labeled "Output and Test Cases".



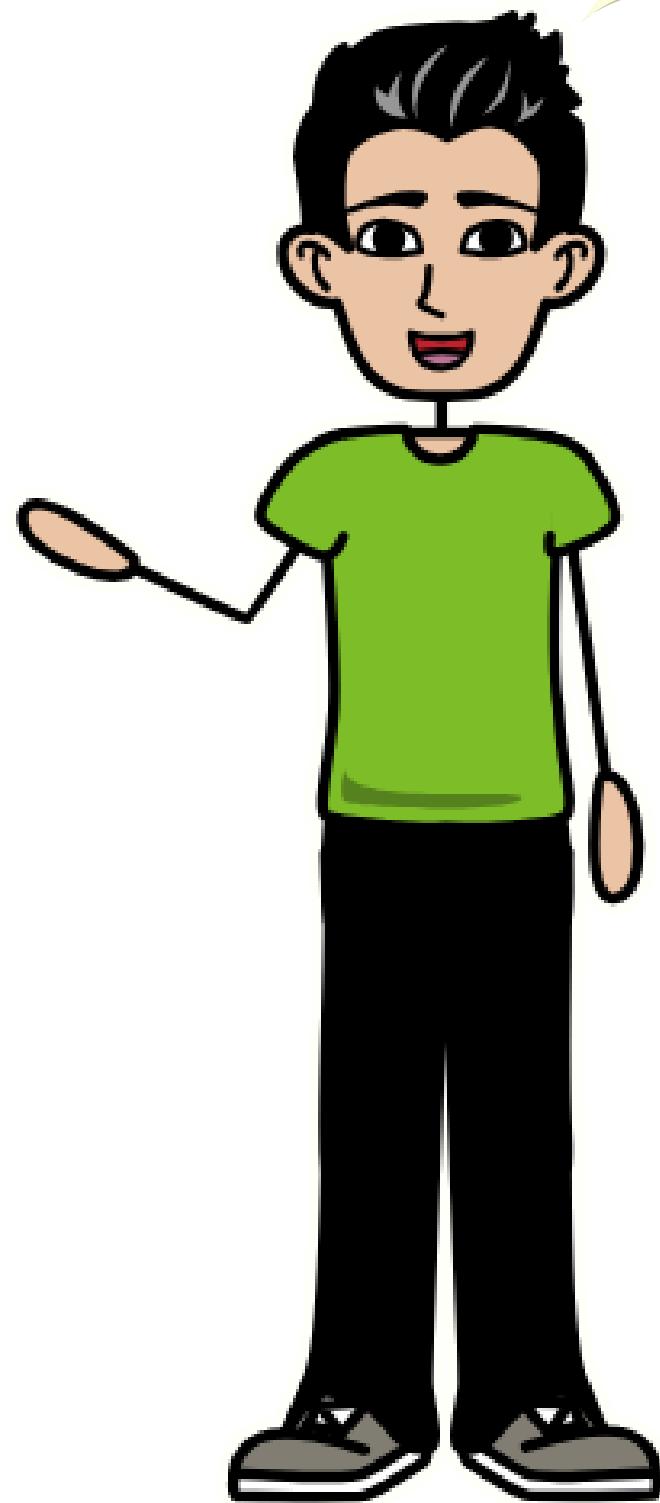
**What if we also  
got a detailed  
solution of the  
question being  
asked ?**

The screenshot shows the SEEK Portal interface. At the top, there is a navigation bar with 'SEEK Portal' and a user email '211XXXXXX@us.Study.IITM.ac.in'. Below the navigation bar, there are buttons for 'Calculator' and 'Ask AI'. On the left, a sidebar titled 'Course Details' lists weeks from Week 1 to Week 12. In the center, a box titled 'PA Question - 1' contains the following text:  
**Make a list fruits where the elements are: apple, banana, kiwi, orange, pineapple.  
Display the last element of the list**

Below the question, there are three tabs: 'Code', 'Error Analysis', and 'Solution'. The 'Solution' tab is highlighted with a red border and a mouse cursor is hovering over it. The solution provided by AI is:  
**AI: The given question can be solved in the following way**  
```  
fruits = ['apple', 'banana', 'kiwi', 'orange', 'pineapple']  
print(fruits[-1])  
```

At the bottom of the central panel, there is a link labeled 'Output and Test Cases'.

**And a random quiz generator too to practice our knowledge !**



SEEK Portal

Calculator Ask AI

Course Details ▾

- Week 1 ▾
- Week 2 ▾
- Week 3 ▾
- Week 4 ▾
- Week 5 ▾
- Week 6 ▾
- Week 7 ▾
- Week 8 ▾
- Week 9 ▾
- Week 10 ▾
- Week 11 ▾
- Week 12 ▾

Practice Assignment

Common Generate Random

**Question 1:**  
Which of the following data types is immutable in Python?  
 a) List  
 b) Dictionary  
 c) Set  
 d) Tuple

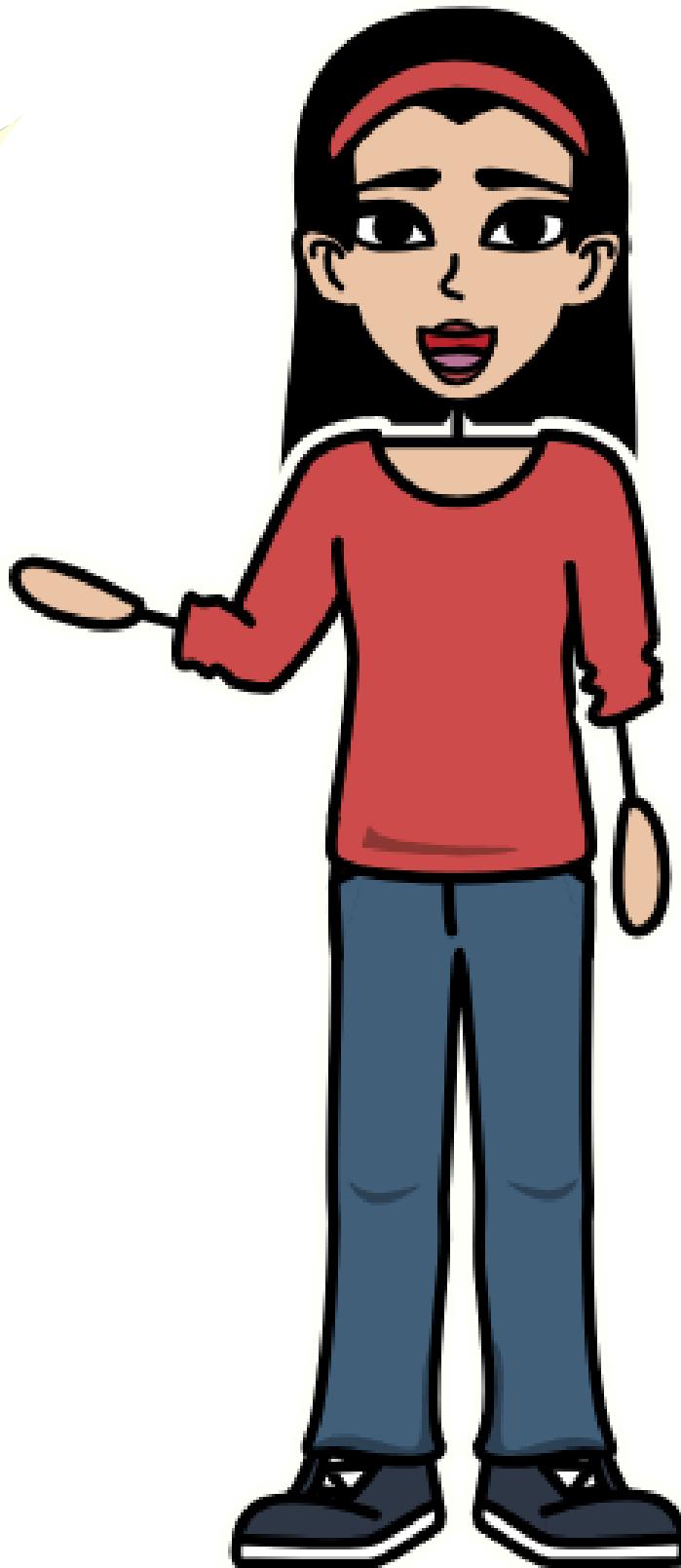
**Question 2:**  
What does the `len()` function do in Python?  
 a) Returns the last element of a list  
 b) Returns the number of items in an object  
 c) Converts a string to lowercase  
 d) Checks if an element is in a list

An illustration of a blue laptop with a pink keyboard. The screen displays the SEEK Portal software interface. The interface shows a sidebar with 'Course Details' and weeks 1 through 12. The main area is titled 'Practice Assignment' and contains two questions about Python data types. The 'Generate Random' button is highlighted with a red box and a cursor arrow. The laptop is shown from a top-down perspective.



**Now where do we  
get a portal of  
such kind ?**

**Maybe we can  
make it ourselves !  
We can also add a  
chatbot which  
answers FAQ's**



# Learning without GenAI

Without GenAI, students often face a more traditional and static learning experience. They need to manually sift through extensive lecture materials, wait for feedback on assignments, and lack interactive tools that adapt to their learning needs.



# Learning with GenAI

With GenAI, learning becomes more dynamic and personalized. Students can quickly get summaries of lectures, receive instant feedback on assignments, and generate random practice questions. This makes the learning process more efficient, engaging, and tailored to individual needs.



# Wireframes for **Student's Portal**



# Login Page

- Users can input the credentials to log in or register as new students
- Displays important dates

The wireframe illustrates a login interface for IIT Madras. At the top, a header box contains the text "IIT Madras". Below it, a main content area is divided into two sections: "SIGN-IN" on the left and "Latest Updates/ Announcements" on the right. The "SIGN-IN" section includes fields for "Email :" and "Password :" with corresponding input boxes, a "Submit" button, and a link "Don't have an account ? Sign-up". The "Latest Updates/ Announcements" section displays "Quiz Dates for May 2024 Term" followed by a list of dates: Quiz 1: 7 Jul 2024, Quiz 2: 4 Aug 2024, and End Term: 1 Sept 2024.

IIT Madras

SIGN-IN

Email :

Password :

Submit

Don't have an account ? Sign-up

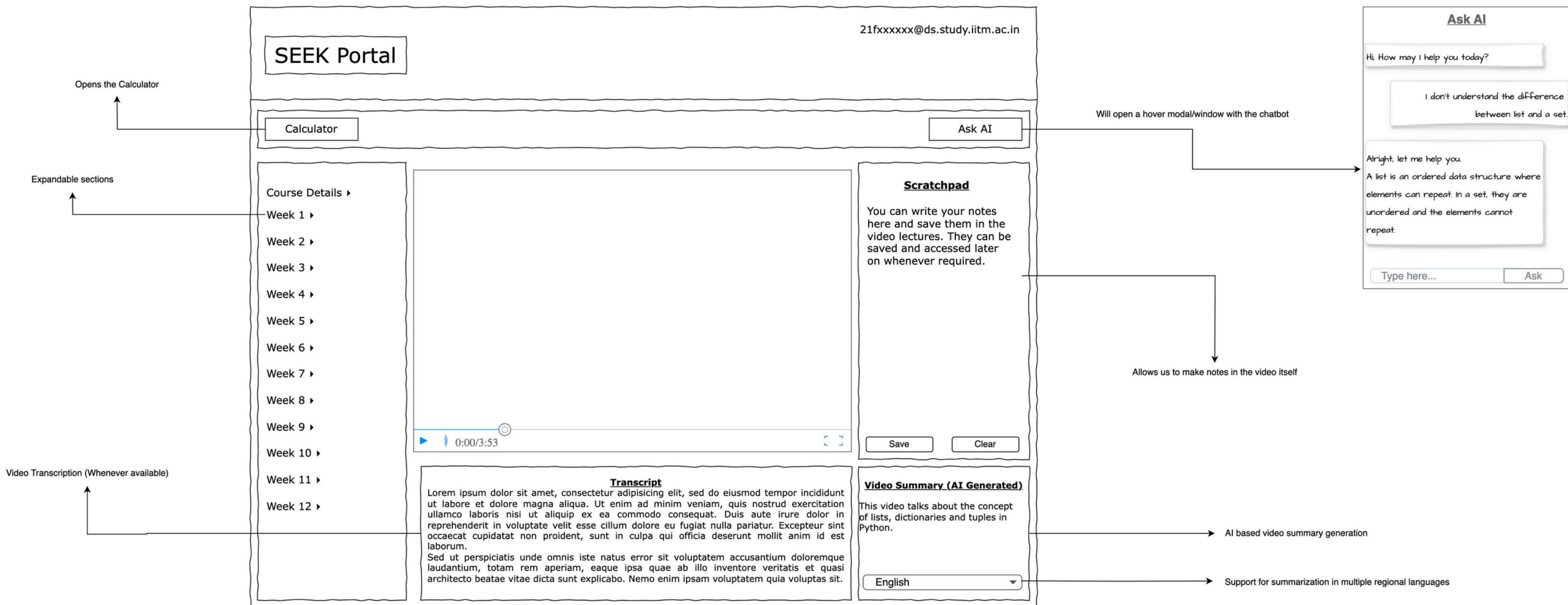
Latest Updates/ Announcements

Quiz Dates for May 2024 Term

Quiz 1: 7 Jul 2024  
Quiz 2: 4 Aug 2024  
End Term: 1 Sept 2024

# Lecture Page with Video Summarization

- Key Features include Video Summarization with regional language support, Scratchpads, Ask AI and many more features



# Lecture Slides with Summarization

- Delivers AI-generated Slide summaries with regional language support to mitigate the time-consuming task of taking notes and focus on the concepts

The diagram illustrates the SEEK Portal interface, showing a user session with course details, a slide viewer, a scratchpad, and an AI-generated summary.

**SEEK Portal** (Header)

21fxxxxxx@ds.study.iitm.ac.in (Email)

**Calculator** (Icon)

**Ask AI** (Icon)

**Course Details** (Section)

- Week 1 ▶
- Week 2 ▶
- Week 3 ▶
- Week 4 ▶
- Week 5 ▶
- Week 6 ▶
- Week 7 ▶
- Week 8 ▶
- Week 9 ▶
- Week 10 ▶
- Week 11 ▶
- Week 12 ▶

**Slides - Python Data Structures** (Section)

Download Print

IITM Online Degree Programme

Introduction to Python (BSCS1002)

Python Data Structures: Lists, Dictionaries, and Tuples

Foundational Level

Page 1

IITM Online Degree Programme

Lists

- Lists are ...
- Lorem ipsum dolor...
- ...

eg. `l = ['apple', 'banana', 'orange']`

Foundational Level

Page 2

**Scratchpad**

You can write your notes here and save them along with the slides. They can be saved and accessed later on whenever required.

Save Clear

**Slides Summary (AI Generated)**

These slides highlight the concept of lists, dictionaries and tuples in Python.

Ut enim ad minim veniam, quis nostrud.

Key Point 1  
Key Point 2  
Key Point 3  
...

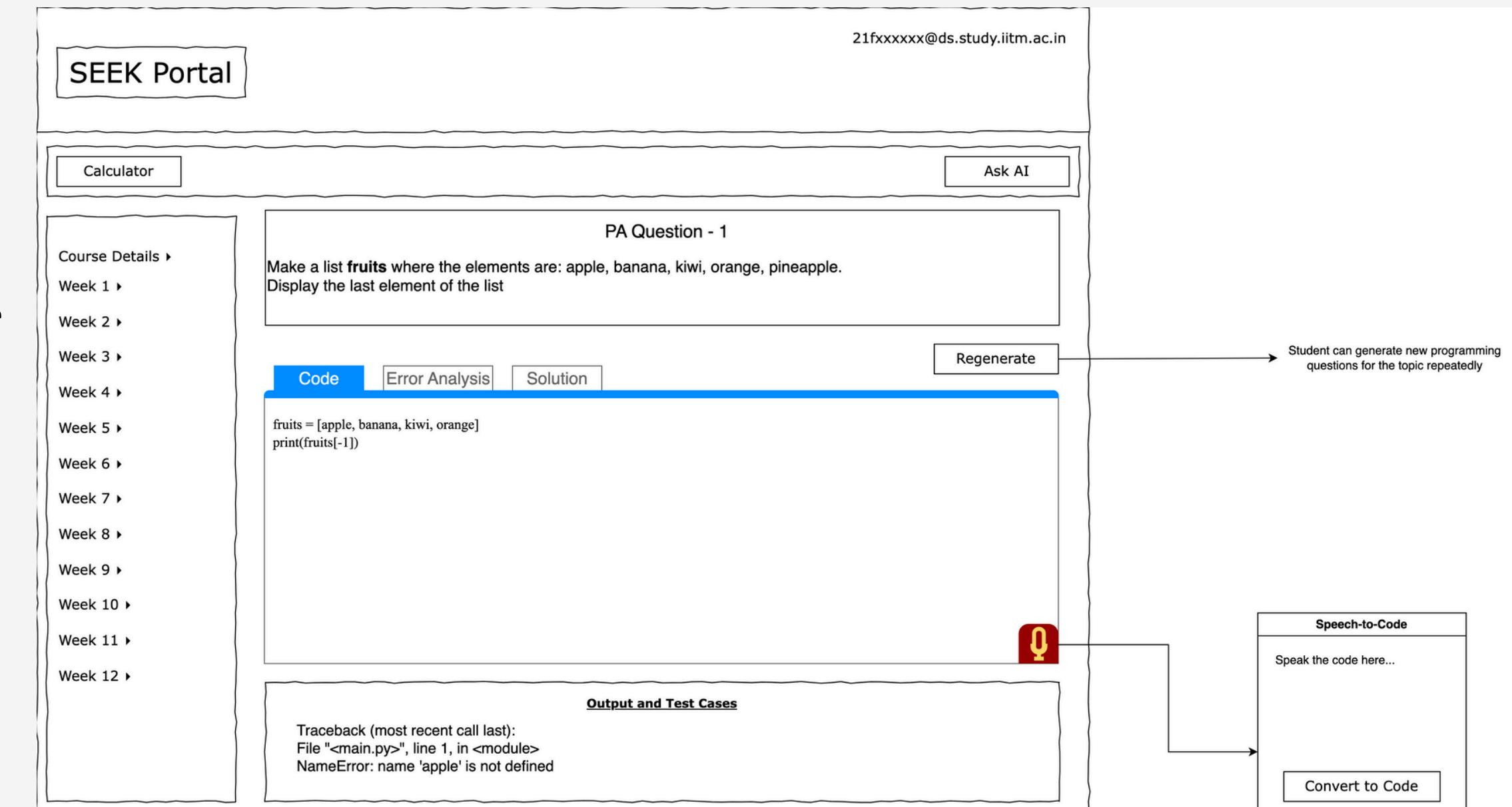
English

AI based slide summary generation

Support for summarization in multiple regional languages

# Coding Environment for Programming Assignments

- For practice programming assignments, students would have an *area to code*, an *analysis of the errors* in the code, and a *solution* tab
- Speech-to-Code functionality for students with limited motor skills



# Coding Environment for Programming Assignments

## AI-generated Error Analysis

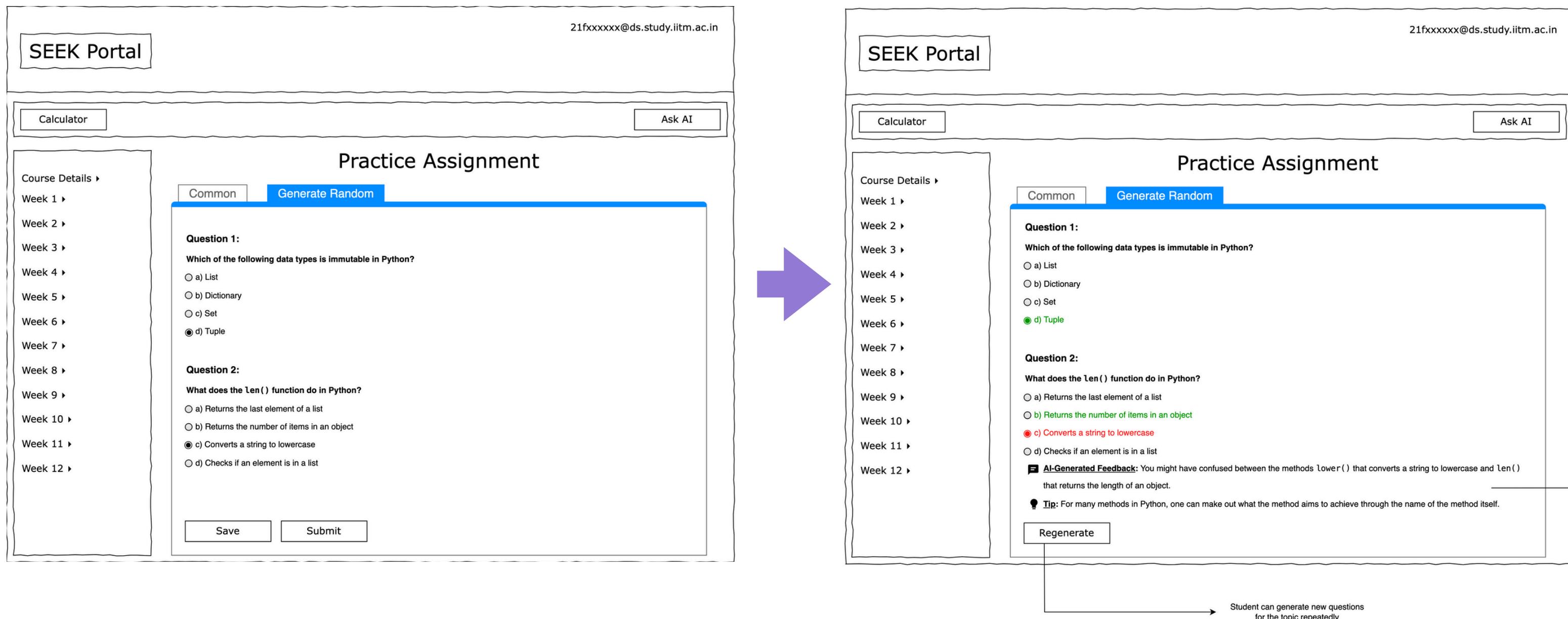
The screenshot shows the SEEK Portal interface. At the top right, the email address 21fxxxxxx@ds.study.iitm.ac.in is displayed. The main header says "SEEK Portal". Below it, there are "Calculator" and "Ask AI" buttons. On the left, a sidebar lists "Course Details" and weeks from Week 1 to Week 12. The main content area displays a "PA Question - 1" which asks to make a list of fruits and display the last element. Below the question, there are three tabs: "Code", "Error Analysis" (which is highlighted in blue), and "Solution". A "Regenerate" button is also present. An AI-generated error message states: "AI: In the code that you have written, you did not put the elements of the list between quotes to form a string. Also, you missed one element from the question, to include Check that and try again." At the bottom, there is a section titled "Output and Test Cases".

## AI-generated Solutions

The screenshot shows the SEEK Portal interface, similar to the first one. At the top right, the email address 21fxxxxxx@ds.study.iitm.ac.in is displayed. The main header says "SEEK Portal". Below it, there are "Calculator" and "Ask AI" buttons. On the left, a sidebar lists "Course Details" and weeks from Week 1 to Week 12. The main content area displays a "PA Question - 1" which asks to make a list of fruits and display the last element. Below the question, there are three tabs: "Code", "Error Analysis", and "Solution" (which is highlighted in blue). A "Regenerate" button is also present. An AI-generated solution message states: "AI: The given question can be solved in the following way" followed by a code snippet: "fruits = ['apple', 'banana', 'kiwi', 'orange', 'pineapple'] print(fruits[-1])". At the bottom, there is a section titled "Output and Test Cases".

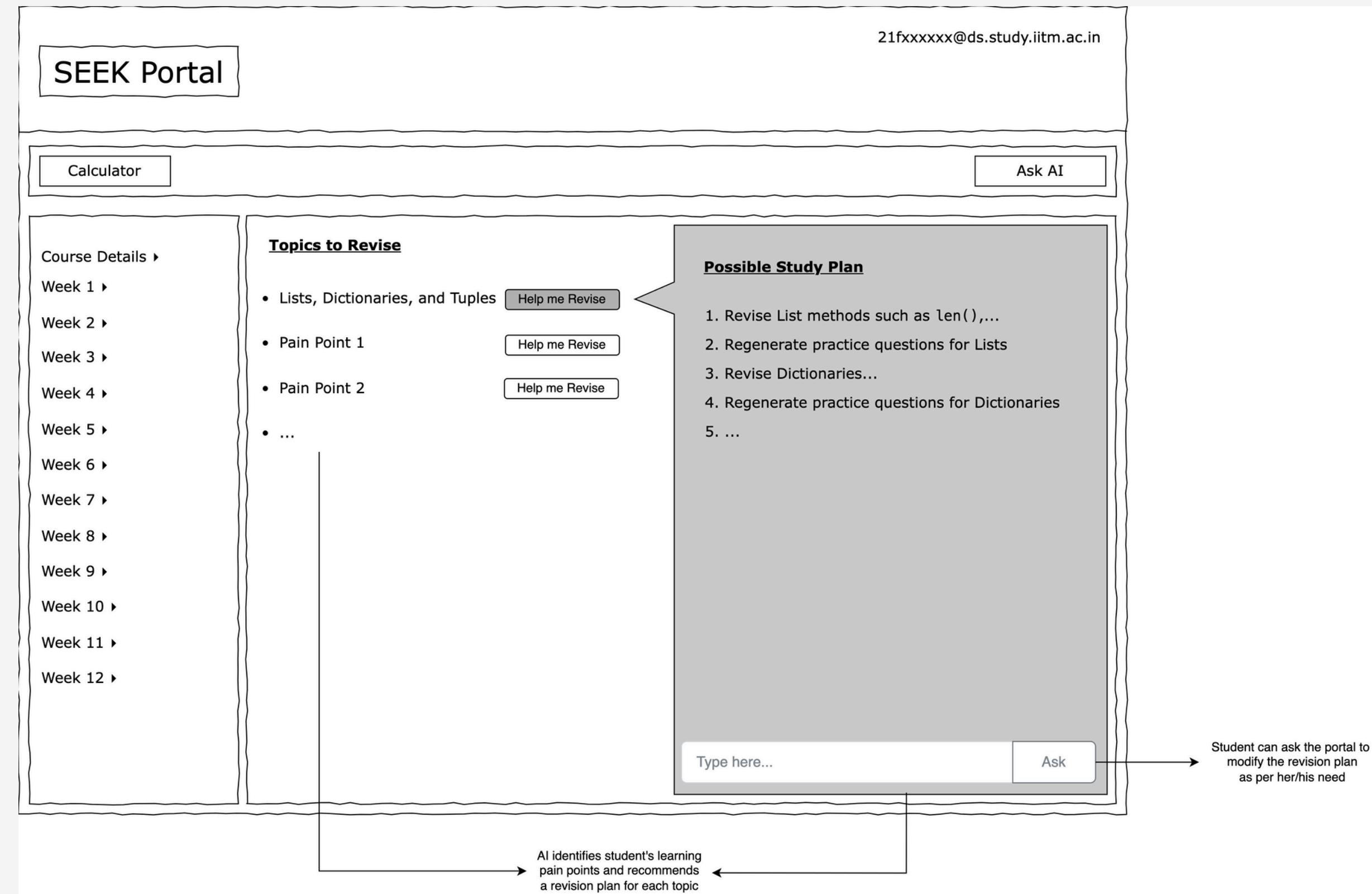
# Theory-based Assignments

- Traditional Practice Assignments
- Option to generate random questions on the current week's content
- AI-generated feedback for wrong answers
- Tips to avoid such mistakes in future



# Pain-Point Detection and Personalised Revision Plan

- Identifies student's learning pain points
- Suggests possible study plans for them to improve upon those concepts



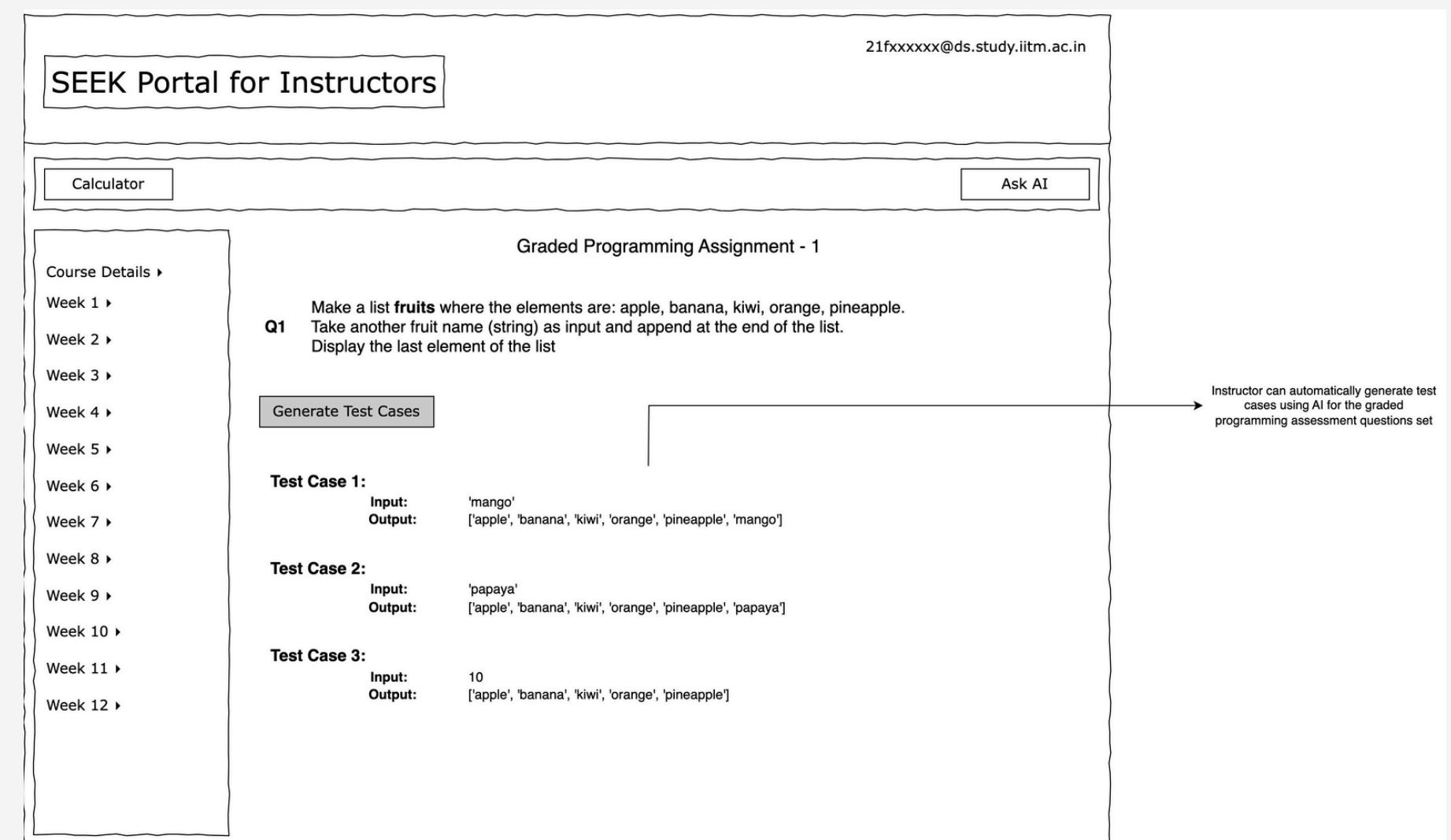
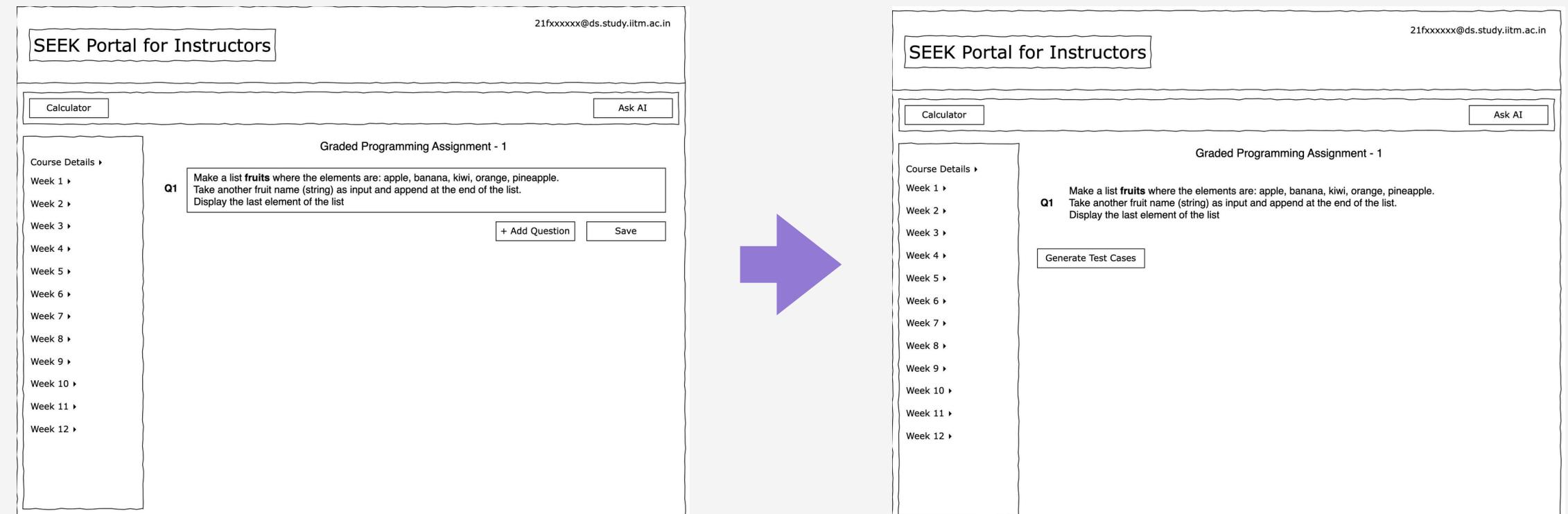


# Wireframes for **Instructor's Portal**



# AI-generated Test Cases for Graded Programming Assignments

- Instructors can add questions for Graded Programming Assignments
- AI will handle the creation of public and private test cases for the questions





# Conclusion



- Presented a detailed overview of the milestone focusing on User Interfaces
- Included storyboards for the application and low-fidelity wireframes based on user stories from Milestone 1
- Showcased our creativity in enhancing the learning portal for students and instructors
- Wireframes highlighted innovative features such as AI-generated video summaries, coding environments, error analysis, and study plan suggestions
- Instructors were also provided with tools to manage assignments effectively
- Overall, the document reflects a promising direction towards creating an intuitive and engaging platform for educational purposes.



# Thank you!

