



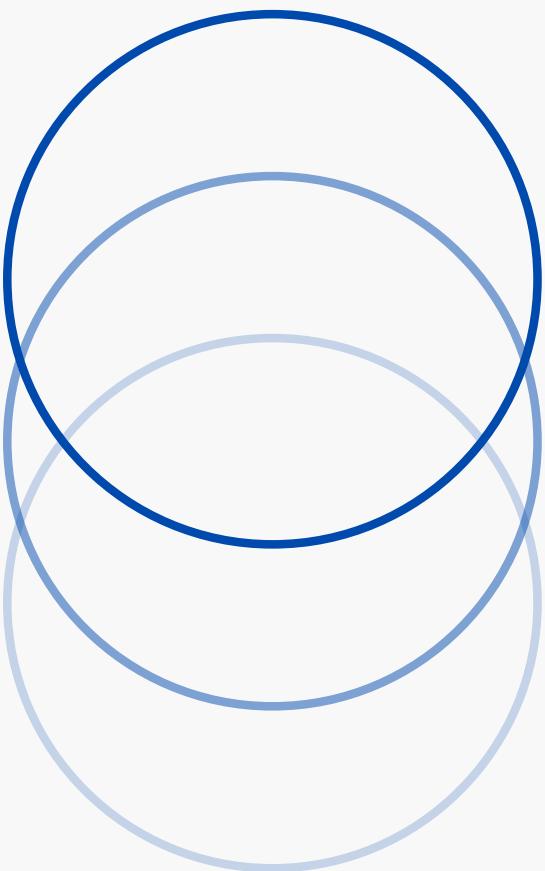
09.05.2025

AI Teaching Assistant

Developing an AI-Based Solution
for CS Lab Support

Content

- 1 Problem
- 2 Mission
- 3 Target Audience
- 4 Solution
- 5 Market Analysis
- 6 Strengths
- 7 Objectives
- 8 Budget



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Have you ever felt frustrated while
trying to explain your problem to
your TA and trying to get an
answer?

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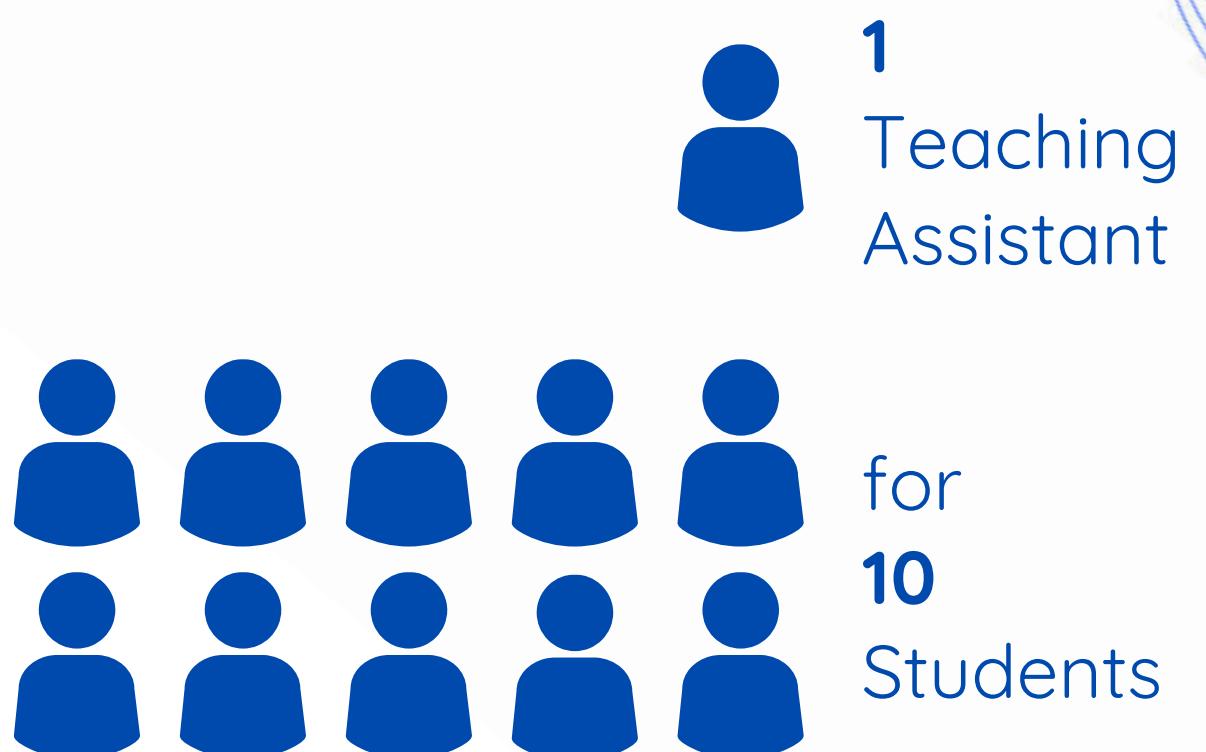


Problem

- Fear of Judgment of Student
- Low Number of Teaching Assistants
- Teaching Assistants' Limited Subject Experience

As a Result:

- => Students may struggle to grasp key concepts
- => Delay completing coursework
- => Experience lower grades



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Team Mission

Our mission is to create an AI-based teaching assistant that improves the learning experience for CS115 students by providing faster, more accessible, and course-specific support during lab sessions.



Team Members



Doğukan Sadıkoğlu
Molecular Biology
and Genetics



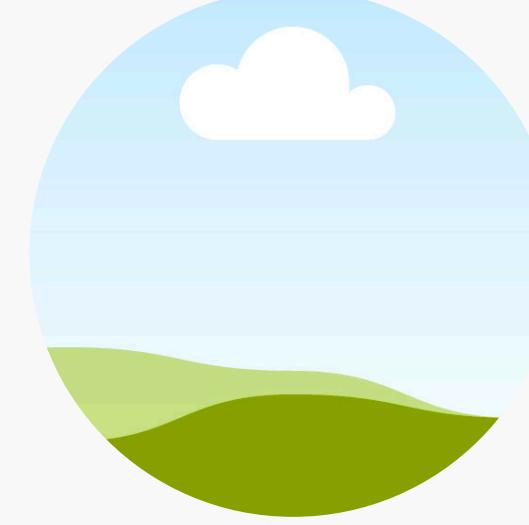
K. D
Psychology



T. Z
Psychology



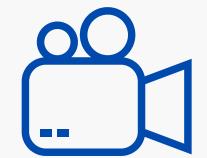
S. E
Graphic Design



B. D.
Graphic Design



Y. A
Communication and
Design



Target Audience & Stakeholder Collaborations

Who is our target audience?

-Bilkent University students currently taking the CS115 course this semester

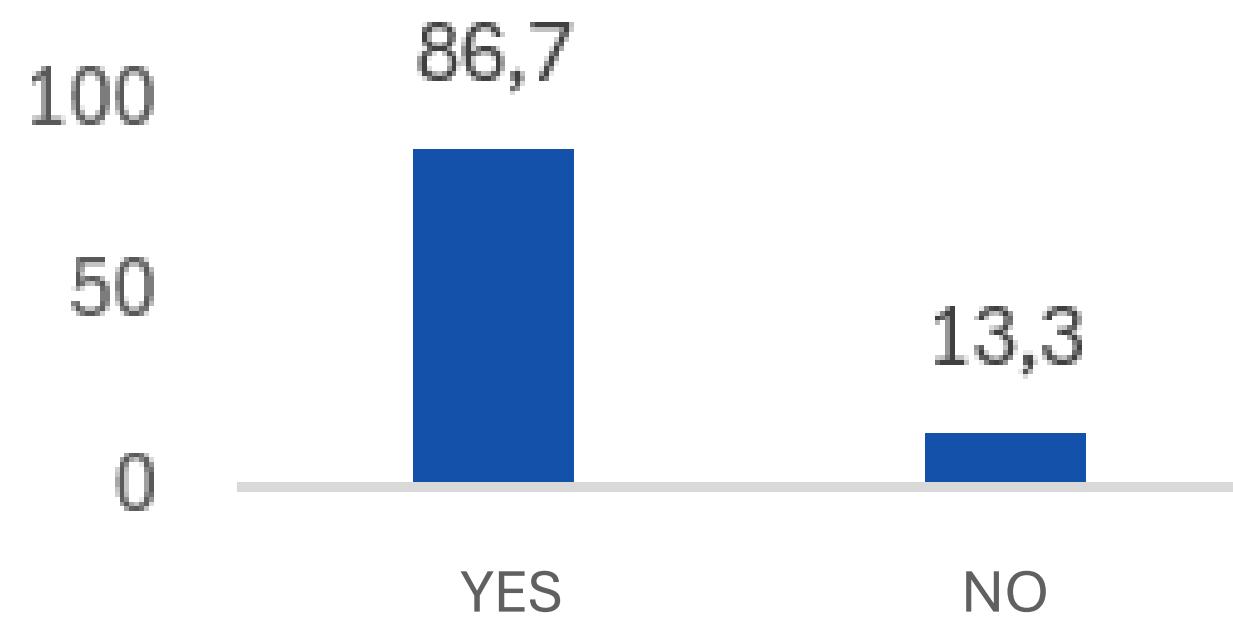
How will we reach our target audience?

-Distributing a survey, collecting targeted feedback

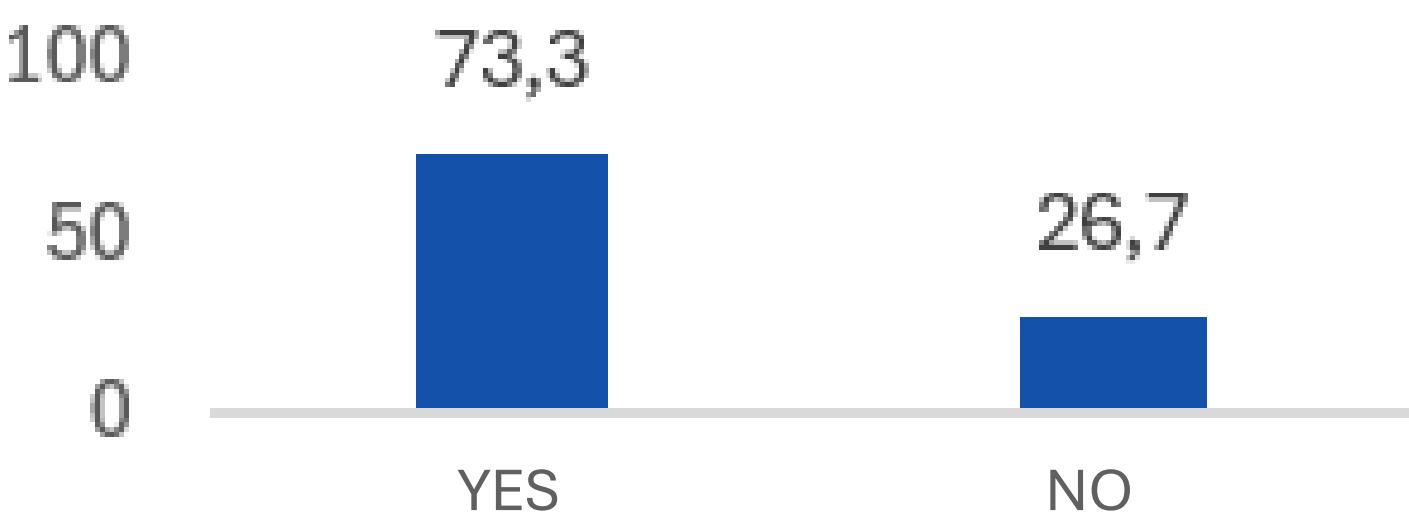


Results from our Survey

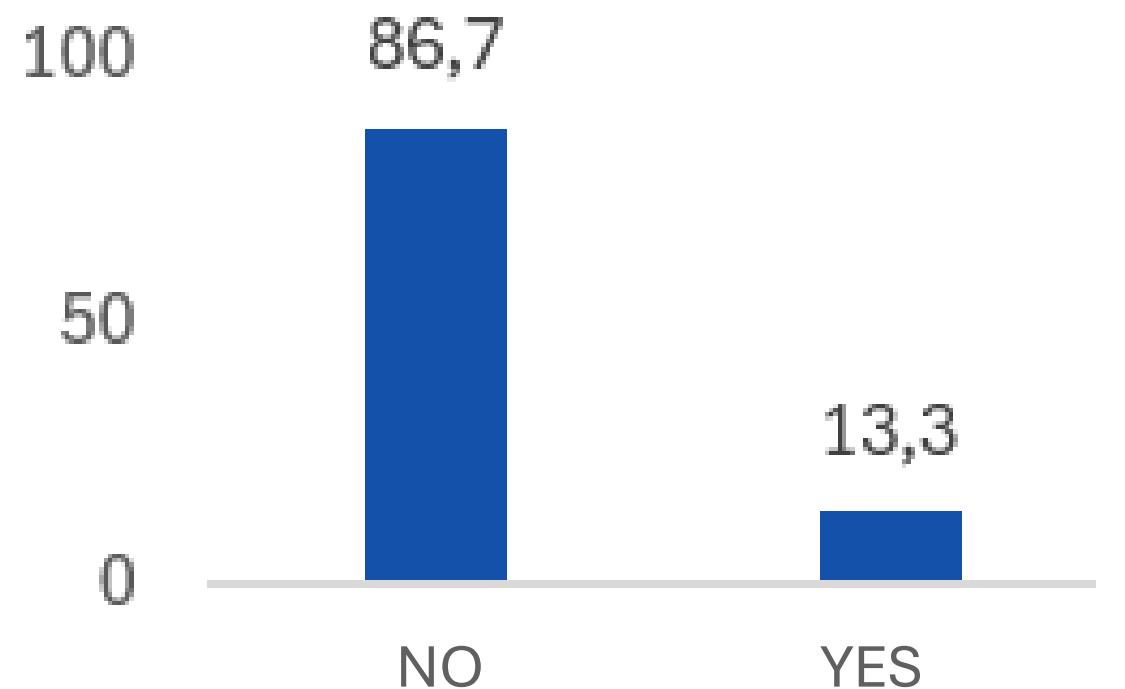
If there were more TA's, would you ask more questions?



If there were more TA's, would your grade improve?

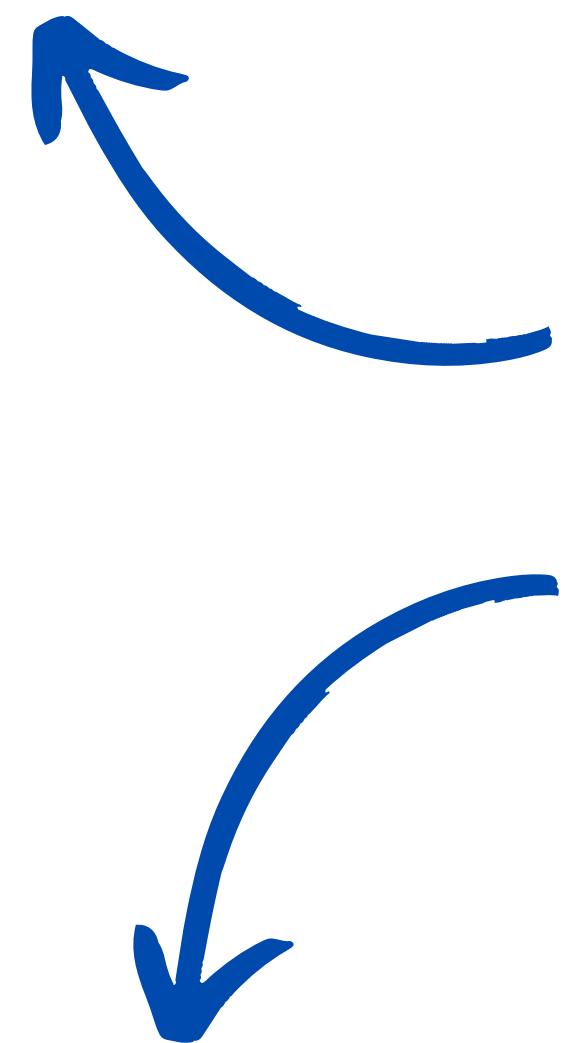


Are you satisfied with the number of TA's?

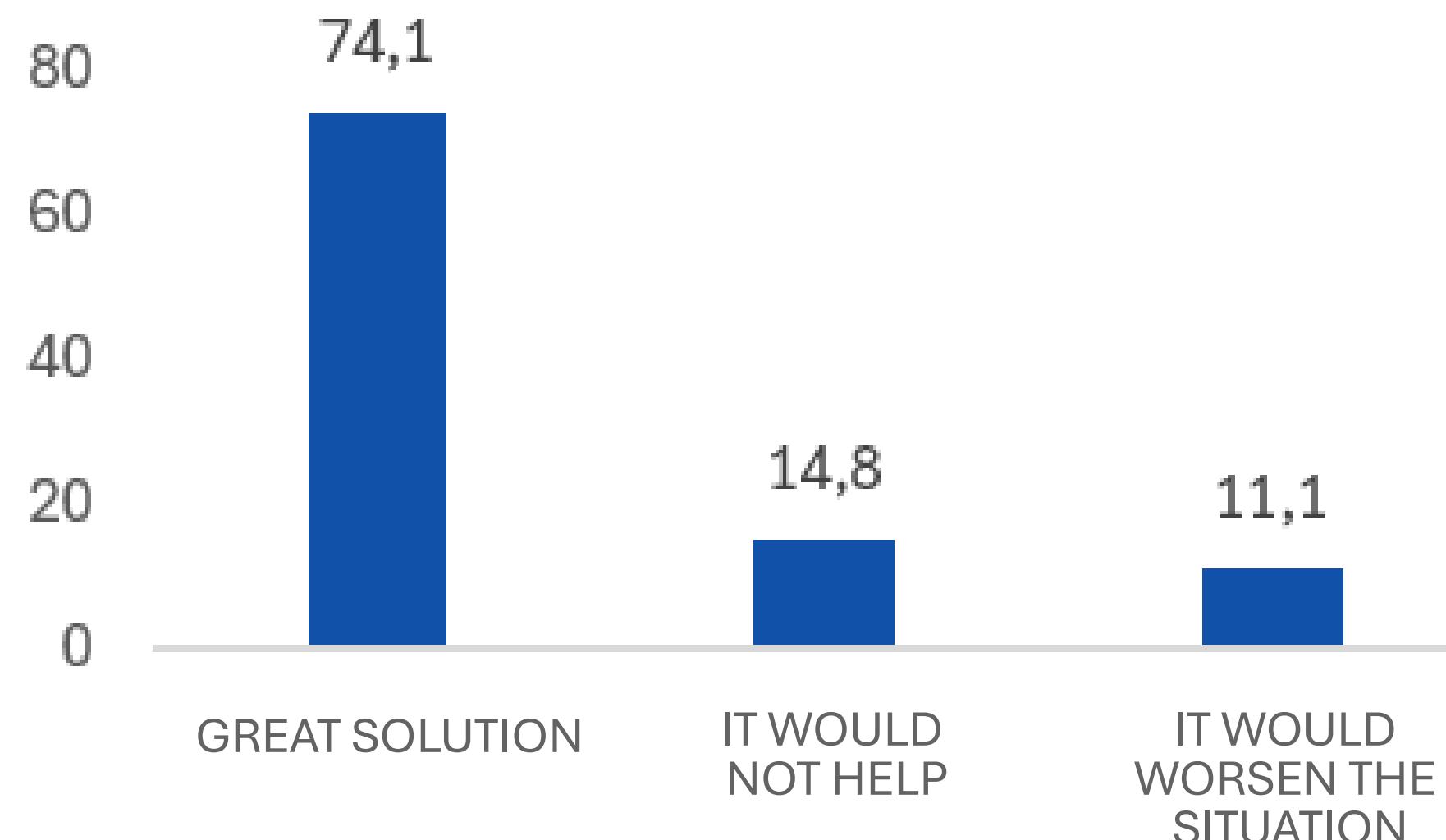


Results from our Survey

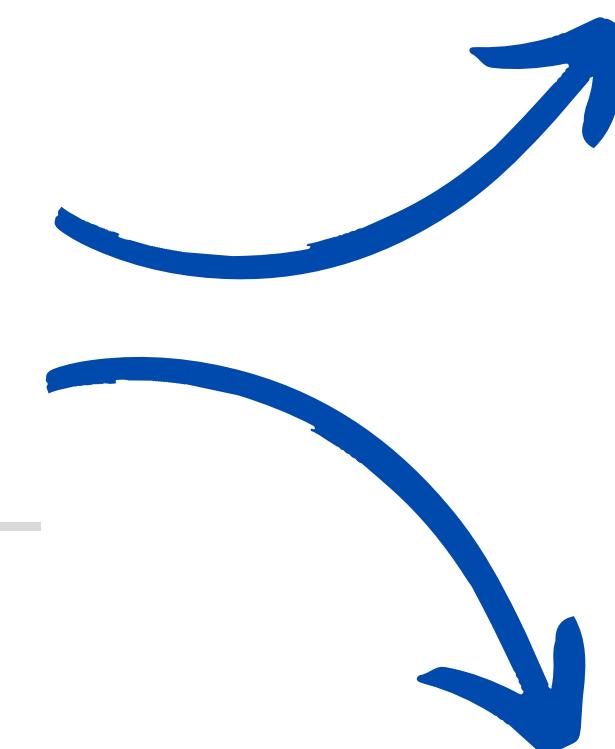
“It would be
beneficial for time
efficiency”



What do you think about having an AI
assistant instead of a TA?



“It would be better,
I would not have to
wait for TA to come
and answer my
questions”



“It will be perfect”

“It would be great
for my grade”

Solution

Strategy Development

Proposed Innovative Solution: Use AI as a Teaching Assistant

Benefits

- Feasible
- Instant
- Effective
- Scalable

Challanges

- AI policy
- Existing support system



Success Metrics

- User feedback.
- Comparative performance



Strengths

Learns from Feedback

The assistant always updates the accuracy of the answer depending on student feedbacks.

Communication

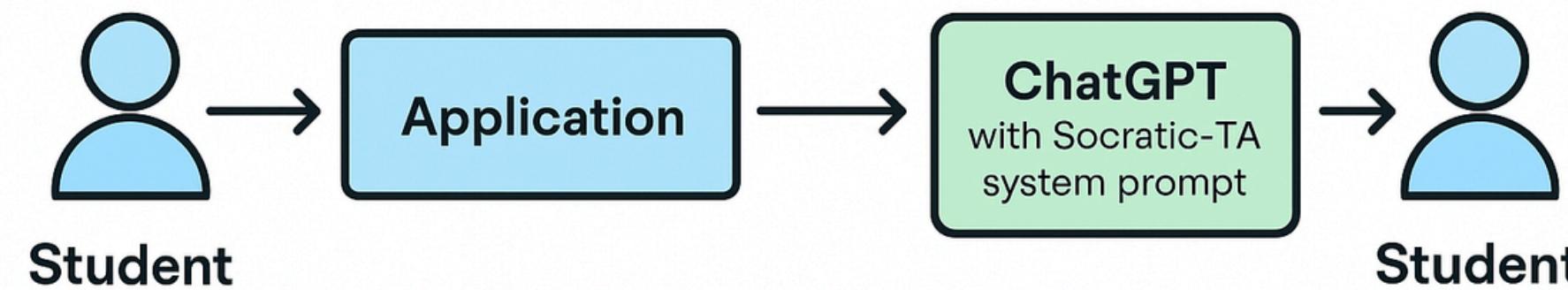
The communication between the assistant and the student should be natural and interactive imitating a human assistant.

Aligned with the Course Content

The assistant is directly aligned with course content, especially as materials and lab questions change.

Sample Question & Answer Interaction

I've got a text file where each line is one value—sometimes it's an integer like 42, sometimes a float like 3.14, and sometimes just text. How can I tell in Python whether a string represents an int, a float, or should stay a str?



Answer of ChatGPT Without Modification

- ✖ Directly gives the copy-paste type answer
- ✖ Hinders the learning process

You're on the right track! In Python, you can check whether a value is an integer, float, or string using the built-in `isinstance()` function. Here's how you can define your `separate()` function to sort elements into integers, floats, and strings:

✓ Example Implementation:

python

 Copy  Edit

```
def separate(entries):
    integers = []
    floats = []
    strings = []

    for entry in entries:
        if isinstance(entry, int):
            integers.append(entry)
        elif isinstance(entry, float):
            floats.append(entry)
        elif isinstance(entry, str):
            strings.append(entry)
        else:
            print(f"Unknown type: {entry} (type: {type(entry)})")

    return integers, floats, strings
```

📝 Note:

If the entries come as strings (like `"3"`, `"2.5"`, `"hello"`), and you want to **convert them to int or float if possible**, you can do something like this instead:

Answer of Campus AI

✓ Structered Response

✓ Guides the Student Into Critical Thinking

✍ Context

- Your file lines (even numbers) come in as strings, e.g. "42" or "3.14".
- Goal: decide whether each cleaned-up string is an int, float, or just str.

💡 Key Insight

What happens if you call `int("3.14")` or `float("hello")`?

✖ Common Strategy

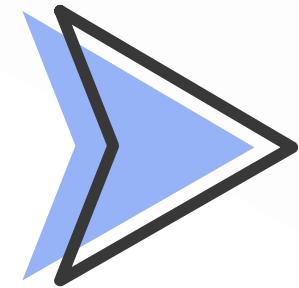
1. Try converting to `int`
2. If that fails, try converting to `float`
3. If that also fails, treat it as a `str`

❓ Guiding Questions

- Error-handling:
Which Python construct lets you "try something" and then handle the failure without crashing?
- Exception type:
When `int()` (or `float()`) can't parse, which exception is raised?
- Next step after int-failure:
What built-in should you attempt to handle decimal forms (including things like "1e-3")?

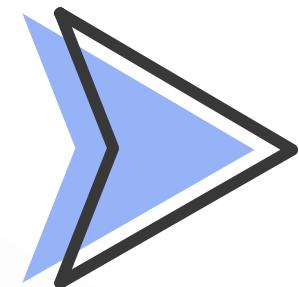
Implementation Plan

Analysed the needs
of our customers



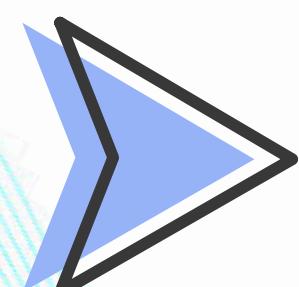
Surveys and
observatory sessions

Coding experience



Python library for ChatGPT
API called, OpenAI library

Prototype



Conduct trial runs and
refine functionality

Pricing

- 700 Students per semester (Only in CS115/125!)
- 0.0025\$ Per question & answer of an average interaction ($12.5\$ \times 200 \times 10^{-6}$, using gpt-4o)
- On average, 20 questions per person
- 35\$ For 700 students per week
(compared to 700\$ for TAs:
 $100 \text{ €}\cdot\text{h}^{-1}\cdot\text{TA}^{-1} \times 70 \text{ TA} \times 4 \text{ h} \% 40 \text{ €}\cdot\text{\$}^{-1}$)

Profit

Estimated Profit

665 \$
per week



Future Plans



Spread AI TA for other classes
→ Other Universities

Thank you!

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Access to AI Assistant through QR



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