

Name Simmi Kumari Desk No. Unknown

### Boiling Point Elevation Prelab

1. Explain what the van't Hoff factor is.

van't Hoff factor is denoted by 'i'. It tells us about the numbers of ions/particles a solute dissociates into when it is dissolved in solvent. It is directly proportional to the boiling point elevation.

2. The boiling point of a solution containing 5.35 g of a nonvolatile hydrocarbon in 102.2 g of acetone is  $56.60^{\circ}\text{C}$ . What is the molecular weight of the hydrocarbon?

For acetone,  $T_b = 55.95^{\circ}\text{C}$  and  $K_b = 1.71^{\circ}\text{C/m}$

Given  $T_b = 56.60^{\circ}\text{C}$   
 $T_{b(\text{solution})}$

$i = 1$ , because of hydrocarbon

$T_{b(\text{solvent})} = 55.95^{\circ}\text{C}$

$$\Delta T_b = 56.60 - 55.95 = 0.65^{\circ}\text{C}$$
$$K_b = 1.71^{\circ}\text{C/m}$$

$$\Delta T_b = i K_b m$$

$$0.65 = 1 \times 1.71 m$$

$$m = \frac{0.65}{1.71} = 0.38 \text{ mol/kg}$$

moles of hydrocarbon =  $m \times \text{kg of solvent}$

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$$\text{moles mass} = \frac{\text{mass of solute}}{\text{moles of solute}} = \frac{5.35 \text{ g}}{0.039 \text{ mol}} = 137.2 \text{ g/mol}$$

# Simmi Kumari

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## EDUCATION

### Bachelor of Science in Computer Science

August 2024 - December 2028

Georgia State University | Honors College

Atlanta, Georgia

**Awards/Honors:** Georgia State University's 100% Campus Atlanta Freshmen Scholarship

**Organizations:** Computer Science Club, Cybersecurity Club, Chess Club, Student Alumni Association, Mathematics and Statistics Club, WomenLead, Finance & Investment Network, Programming Club @ GSU, Girls++

**Relevant Coursework:** Hons. Principal of Computer Science – I (Fall'24), Calculus I (Fall'24), Hons. Leadership Seminar (1000), Hons. Principal of Computer Science – II (Spring'25), Theoretical Foundation of Computer Science (Spring'25), Calculus II (Spring'25)

## SKILLS

**Programming Languages:** C, C++, Python, and JavaScript

**Software/Skills:** Android Studio, VS Code, Microsoft Office Suite, GitHub, HTML, CSS, Final Cut Pro, DaVinci Resolve

**Certifications:**

- Harvard's CS50P Introduction to Programming with Python (Ongoing)
- Harvard's CS50x Introduction to Computer Science (Ongoing)

**Soft Skills:** Problem-Solving, Critical Thinking, Leadership, Time Management, Adaptability, Teamwork

## WORK/VOLUNTEER EXPERIENCE

### Undergraduate Lab Assistant

January 2025 – Present

*Mathematics Interactive Learning Environment (MILE) | Georgia State University*

- Guiding 50+ Precalculus students weekly, enhancing their understanding of mathematical concepts.
- Facilitating a positive and engaging learning environment by encouraging patience, problem-solving, and a growth mindset, which has led to a 15% improvement in student performance.
- Coordinating with faculty and staff to maintain an organized and effective tutoring center, ensuring resources are readily available for students.
- Applying strong mathematical knowledge and interpersonal skills to address students' individual learning needs.

### Volunteer Researcher

September 2024 – December 2024

*University AI Research | Georgia State University*

- Conducted research as part of the AI2 Research Laboratory, which aims to use AI to enhance student's learning experience.
- Worked on the front-end development of research projects using HTML, CSS, and JavaScript to create a user-friendly interface.
- Tested AI and path finding algorithms models.
- Collaborated in a team of 4, contributing to software development and usability improvements.
- Skills: Python (Programming Language) · Cascading Style Sheets (CSS) · HTML · JavaScript · React

### Graphic Design Intern

September 2023 – April 2024

*DUBLIEU | Bengaluru, India*

- Designed 20+ visual materials, including posters and presentations, aligning with client expectations and project goals.
- Managed project deadlines and collaborated with cross-functional teams, enhancing my attention to detail and teamwork skills.

## LEADERSHIP & DEVELOPMENT

### Orientation Leader

June 2023 - May 2024

*Jain College | Bengaluru, India*

- Directed orientation sessions, guided new students, and led campus tours, ensuring a welcoming environment.
- Collaborated with staff and faculty to organize successful orientation events, effectively balancing multiple responsibilities.
- Provided clear, accurate information to incoming students, strengthening my public speaking and organizational skills.

### Member of Computer Console Team, Cultural Forum

April 2024 – September 2023

*Jain College | Bengaluru, India*

- Directed a team in organizing technical aspects of cultural events and festivals, including managing event logistics and ensuring smooth process.
- Gaining valuable experience in an award-winning program focused on digitalization, problem-solving, leadership, and effective teamwork.

## PROGRAMS & AMBASSADORSHIPS

### Microsoft Learn Student Ambassador

January 2025 – Present

*Microsoft | Global Program*

- Recently enrolled in the global Microsoft Learn Student Ambassador program to advocate for technology education and innovation.
- Organized workshops and events to introduce students to Microsoft's tools and resources, enhancing technical literacy.

### CodePath Summer Program

Summer 2025

*CodePath*

- Accepted into the highly selective CodePath Summer Program focused on advanced software engineering concepts.
- Will develop foundational skills in mobile and web app development through hands-on projects and peer collaboration.