

Objectives

The project team's goal is to get high school students excited about Computer Science, and to ultimately increase the number of students in the Chicago area taking Computer Science (CS) courses in high school and college.

The team will accomplish this by debunking myths and increasing the understanding of what CS and computational thinking entails, explaining and providing evidence for why CS is important and emphasizing importance of attracting women and underrepresented minorities to CS.

team members

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IPRO 321- Increasing awareness of CT and CS



“Computational Thinking is taking an approach to solving problems, designing systems, and understanding human behavior that draws on concepts fundamental to computer science. It involves thinking in multiple layers of abstraction at once and gives us the power to scale beyond our imagination.”

- Dr. Jeannette Wing

Solutions

- Design curriculum ideas that can be readily integrated into a variety of different subject areas.
- Develop short activities that provide educators with the flexibility to incorporate with their existing lesson plans.
- Ensure that both the lecture material and the hands on activities engage the attention of the student audience.
- Target real world tasks that students perform on a daily bases and relate how those processes are based off of computational thinking. It is essential to show the relevance and importance of the concepts on hand.
- Aim to spark an interest and appreciation for computational thinking that will allow students to independently satisfy their curiosities.
- Assess the efficacy of the activities on a student audience.
- Market the curriculum modules to local teachers in order to allow for implementation.

Results

- Of the created and adapted activities, four were tested with female high school students on IIT's Women's day.
- Pre-tests and post-tests were administered to determine effectiveness.
- Each survey consisted of four questions, rated on a five-point scale: Strongly Agree = 5, Agree =4, don't Know =3, Disagree =2, strongly Disagree = 1.
- Mean scores of the pre/post tests:

Algorithms: Pre:3.84 Post:4.88

Scheduling: Pre:3.73 Post:4.67

Parallelism: Pre:2.91 Post:3.78

Image Proc.: Pre:3.23 Post:4.25



References

“CS inside”, University of Glasgow,
< <http://csi.dcs.gla.ac.uk/>>.

Joanna Goode, “What is Computer Science anyway”, Institute for Democracy, Education, and Access University of California, Los Angeles.

“Beat the clock-sorting networks”, Computer Science Unplugged.
<<http://www.unplugged.canterbury.ac.nz/>>

“Minimal Spanning Tree”, Computer Science Unplugged.
<<http://www.unplugged.canterbury.ac.nz/>>