

COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK
PRE-COLLEGE PROGRAMS

Student: Yaj Parameswaran
Course: Thinking and Problem Solving: Math in the Real World
Date: August 17, 2023

In this course, students developed a deeper appreciation for the richness of mathematics while further developing their reasoning and problem-solving skills. The course consisted of several overarching topics including graph theory, combinatorics, probability, statistics, game theory and financial mathematics. Throughout the class, we studied many non-routine problems that enhanced and enriched our lessons and allowed students to develop and improve their ability to solve challenging questions. In addition to considering how these abstract topics could be applied to solve real-world problems, an emphasis was placed on improving both written and oral communication skills in a variety of ways. Students learned how to write formal solutions. Finally, all of the pupils in the class had to work with each other to solve problems as they would in a university-level course or in a professional work setting.

Yaj is a very hardworking student who has routinely demonstrated that he cares about learning. Though the coursework was very challenging, Yaj never hesitated to embrace the challenge that was presented in this class. His willingness to take on challenging work is the hallmark of an excellent student.

Yaj's classwork was good. He often worked with his classmates to solve the problems and understand the mathematics in this course. He worked extensively with his classmates and developed his communication and reasoning skills. While Yaj may have been hesitant to share his work with the entire class, his classmates would have benefitted from hearing his solutions. Yaj should work to do this more often in his future courses.

Yaj's written work was very good. Since he sought assistance and clarification in class and during office hours outside of class, he learned how to write detailed solutions accurately and also learned how to communicate his understanding of higher-level mathematics effectively. Yaj's self-advocacy skills are excellent and he should continue to seek help when he needs it. Additionally, as the course progressed, Yaj was more frequently able to independently discover the solutions to the questions in the problem set. This not only demonstrated that Yaj enhanced his content knowledge, but also showed that he developed his problem-solving skills. This will be essential for Yaj to succeed in his future mathematics courses. He should continue to develop these skills in his other mathematics courses.

It has been a great pleasure to teach and learn with Yaj this summer. I am confident that he will be able to succeed in both mathematics and non-mathematics university courses.

Sincerely,

Sridhar Nagubandi, Ph.D.

Thinking and Problem Solving: Math in the Real World

SCHOOL OF PROFESSIONAL STUDIES

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CERTIFICATION OF PARTICIPATION
AWARDED TO

Yaj Parameswaran

FOR PARTICIPATION IN A NON-CREDIT COURSE OFFERED BY
COLUMBIA UNIVERSITY PRE-COLLEGE PROGRAMS

JUNE 26-JULY 14, 2023



Annette Orozco Bhatia, Ph.D.

Associate Dean
Continuing Education