My name is [redacted] and I am a third-year math major at the [redacted]. I am also currently pursuing a computer science minor. I wish to pursue a career in academia in mathematics, and I think that the REU at Clemson would be a valuable tool in working towards this goal.

The reason I want to come to Clemson this summer is that this project closely aligns with my interests in number theory. I am currently in a graduate algebraic number theory course, which extensively covers local and global fields. I have also taken plenty of analysis classes, including complex analysis and measure theory, and I am currently in functional analysis. Besides coursework, I am also self-studying parts of Serre's *A Course in Arithmetic* in my own time, including the section on modular forms. I am comfortable coding in a variety of languages, including experience with Sagemath and Mathematica. Hence I believe I have all the required background knowledge to be successful in this project.

I have previous research experience in number theory from which I have gained many skills that I believe will carry over to this upcoming summer. During the summer of 2024, I was a part of the [redacted] REU at [redacted]. I was the sole undergraduate student working with Professor [redacted] on research concerning triple product L-functions. There is a famous result by Ichino relating a property of global fields with a property of local fields, and the triple product L-function is a focal point in formulating the relationship. The motivation behind our research was to discover if the same result held in a slightly different scenario, over a finite field group rather than a p-adic group. For this project, I constructed various group representations in Sagemath, then used them to compute the image of two trilinear forms that were defined using the representations. Using intuition gained from the computational results, I managed to formally prove the behavior of the trilinear forms over any finite field group.

At the conclusion of the REU, I prepared a final report and presentation to the other REU participants. I surprisingly greatly enjoyed doing the presentation. Summarizing a technical topic into a 10 minute presentation for an audience with little background knowledge in the field was a difficult but rewarding task, and I am proud of the final result. My mentor and I are continuing to work on this research during the academic year, attempting to achieve more general results, and are planning on writing a paper at the conclusion of the project.

The [redacted] REU made me realize that number theory is the field of mathematics in which I am most interested, and I wish to continue to pursue research in this subject in the summer at Clemson.