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Debugging a complex algorithm for the first time sparked a moment of triumph which ignited my passion for Computer Science and Mathematics. The feeling of seeing successful data flows across a network I created raised my curiosity about the principles that power our digital world. This experience motivated me to study advanced systems used in computers, including matrices and their application across fields such as computer graphics and scientific modelling continues to fascinate me.

While exploring the history of Mathematics, I came across "Fermat's Last Theorem", an unsolved problem for centuries, eventually proven by Sir Andrew Wiles in 1995. I read Simon Singh's "Fermat's Enigma", regarding the history of the theorem and how Andrew Wiles was able to prove it. Singh's explanations of complex topics like elliptic curves and modular forms deepened my understanding of mathematics and inspired me to explore these concepts further. Also, reading Peter Norvig's "AI: A Modern Approach" introduced me to the fascinating field of AI, exploring topics such as machine learning, reasoning systems, and search algorithm, which solidified my grasp of AI's core principles and fuelled my passion.

I had the opportunity to work with Amazon, twice, focusing on AWS cloud solutions and AI technologies. I gained insights into how businesses utilise cloud-based solutions and explored the intricacies of generative AI. Additionally, I worked with Fujitsu in cybersecurity, where I learned about the prevalence of cyber threats and developed skills in making recommendations to improve security measures. These experiences have inspired me to apply this knowledge in my projects. I am particularly excited to enhance cybersecurity and data protection into my recent business venture of creating a physics learning website. Furthermore, I enrolled in Stanford University's MOOC on Mathematical Thinking. It exposed me to approach problems in a unique way and encouraged me to think about mathematics in a way often taught at university level. Upon completion, I researched deeper on number theory, properties of integers and the patterns that emerged. I liked the use of modular arithmetic in cryptography because it combined very elegant maths with real-world security applications.

During my time at school, I participated in several competitions, among which were the UKMT and the Bebras Challenge, winning gold and "Best In school" respectively, demonstrating my ability to think creatively and critically under pressure. My drive as an innovative student allowed me to build functional projects. My journey into web development began with HTML and CSS. These technologies provided me a foundation to make simple websites. This piqued my passion for web development, and I began to expand my skills to other technologies, such as ReactJS and Tailwind.

After becoming familiar with JavaScript and its frameworks, I undertook an EPQ, where I created an app in React Native that calculates and tracks user's carbon footprint, allowing them to explore a greener lifestyle. Furthermore, I also participated in Apple's SSC. However, I did not know the language 'Swift', so I had to immerse myself and study its syntax and semantics within the span of 5 months. Eventually, I developed a unique app that promotes mental well-being and mindfulness, which also met Apple's high standards.

Being a top British swimmer has forced me to develop discipline and excellent time management skills to balance it with my academic achievements. Completing the Duke of Edinburgh's Gold Award demonstrates dedication, communication and perseverance. I am also taking Grade 8 Piano, a pursuit I've loved since a young age.

Driven by a passion for computer science and mathematics proven by 99% in Computer Science and Further Maths at AS Level, I am eager to contribute my skills and enthusiasm at university. I aspire to deepen my understanding and push my limits to solve complex problems and create innovative solutions.