

CS 2051: Project Title

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1 Background

- Definition of $\pi(x)$, the number of primes $\leq x$.
- Euclid's proof that $\lim_{x \rightarrow \infty} \pi(x) = \infty$
- Introduce the Riemann zeta function, $\zeta(s) = \sum_{n=1}^{\infty} \frac{1}{n^s}$
- Use the $\zeta(2)$ case and $\frac{\sin x}{x}$ Taylor series to show $\zeta(2) = \frac{\pi^2}{6}$
- Use above idea to derive Euler product formula
- Use Euler product formula with $\zeta(1)$ to get that $\sum_p \frac{1}{p} = \infty$, also showing the infinitude of primes
- Move on to some other main topic?

2 Main result

3 Extension/application/generalisation

4 Preliminary Code and Illustrations

5 Reflection/Conclusion

6 References