On the Number of Primes Less than a Given Magnitude

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When studying the methods and techniques of cryptography the topic of PKC or public key cryptography is often brought to mind. PKC allows for keys used in encryption and decryption to be posted in public domains such as an email server and is used as a means to establish secure yet integrated communication system. Most cryptographers are faced with the questions of how to create safe and secure systems and what values make an encryption or decryption algorithm more secure and this is often done by using scarce large prime integers. Now in order to find out more about these large primes we can look at prime related aspects of number theory notably the prime counting function. I attempt to approximate the function by taking advantage of well known axioms and theorems of number theory. Using two mathematical instruments known as the correlation coefficient along with values extracted from linear regression we can determine the accuracy of my approximation to the prime counting function in comparison to the accuracy of the Prime Number Theorem and the Riemann Prime Counting Function. At small of values of x tested up to 800 but through later research shown to more accurate up to 5000 my approximation proved to be more accurate then Gauss first PNT. At larger values of x my approximation gradually became inadequate and incomparable to Riemman's approximation and the PNT. Overall as discoveries are being made in fields such as number theory my approximation is becoming more compatible with larger values of x.

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