**Michael Le (21689299) Assessment 2 PART 2 REPORT**

Write a short report (no more than 400 words) that demonstrates your chosen distribution and illustrates the central limit theorem using your probability distribution. In your report, you must:

**you must provide a reference from a reliable textbook or journal article (a reference to a website will not be accepted). (DONE)**

**Name of the distribution:**

Beta Distribution

**Parameters:**

Where are shape parameters.

**Notation used for the distribution:**

**X**

**Density function:**

**Where is the Beta function are in terms of the gamma function.**

**NOTE:** In the textbook it uses p and q, (where p = and q = )

**Calculations:**

**By using R to calculate with X , the following results are obtained:**

P(X>=1) =

P(X> 0) =

E(X) =

Var(X) =

**Last Remaining Steps :**

1. Choose some specific values of the parameters and then:
2. Provide plots of the the probability density function and probability distribution function using those parameters,

and explain how these plots demonstrate the suitability requirements.

1. Choose some calculations to perform using the functions you defined, and then list the results using correct notation.

P(X>=1) =

P(X> 0) =

E(X) =

Var(X) =

1. Explain the implications of the central limit theorem as sample sizes increases. To aid your explanation, use the provided generate function to generate suitable random samples using the same parameters and use them to construct some plots.

Include any code used to supplement your report in a separate file for submission. Your report must not include detailed code or calculations in the main body; instead, be descriptive about what you are doing with the code and why. For example, starting sentences with phrases like “By using R to calculate. . . ” would be suitable.

Christian, W. (2007). *Hand-book on STATISTICAL DISTRIBUTIONS for experimentalists*. Particle Physics Group Fysikum University of Stockholm