Project 3 Part 2 – Reliability Approaches

	Inputs	Outputs	Assumptions
FREstimate[1]	From [1, pg. 7-8 "General Inputs"] **Language** – expects a list of languages **Number of components** (The number of software components in this system) – expects 1 to many **Total KSLOC** The total number of 1000 source lines of code in this system, expects a positive number.	From [1, pg.44 "3.3 Prediction Results"] **Defect profile**(defects predicted for each month after delivery) **Failure rate profile(**predicted failure rate for each month after delivery) **Reliability profile(**predicted reliability for each month after delivery) **Availability profile(**predicted availability for each month after delivery)	1. If the growth period is set to zero, then it is assumed that there is no growth in failure rate or MTTF [1, pg. 64, ch.3.4.3 Extrapolations] 2. If input "Number of months in growth period" is set to 0, the MTTF is assumed to remain the same after delivery. [1, pg. 6, ch."General Inputs"] 3. If "code expansion ratio" input is not set, the software chooses a default for your language. (it has built in assumptions for each language type, based on those calculates expansion ratio) [1, pg.39]
SoREL[2]	From [2, pg. 657 - 658 Fig.5, Fig. 11 & Fig. 12] **Trend test selection** (Laplace, Display graph, Arithmetical Mean Test) **Input data type** (Random variable = "failure intensity" or "Time To Failure") **Selection of reliability model** (Hyperexponential, Exponential, S-shaped etc.)	From [2, pg. 658 fig. 12] Mean time to failure Failure intensity Cumulative number of failures	From [2, pg. 654] 1. SoREL is able to operate on two types of failure data : inter-failure times & number of failures per unit of time 2. SoREL allows application of two types of reliability growth models: time domain & interval domain. 3. Selection of the model to be applied if based on the result of the trend tests & objectives to be analized.

1. Frestimate User's Manual Version 3.801 http://www.softrel.com/downloads/frestb.pdf
2. K. Kanoun, M. Kaaniche, J.-C. Laprie, S. Metge : "SoRel: A Tool For Reliability Growth Analysis and Prediction From Statistical Failure Data"