**Work in teams of 2 people.**

**Questions to be entered in the excel spreadsheet.**

1. Use monthly and daily returns to answer this question. Each month a company computes the value at risk for the next month as the minimum return of that month times the square root of 22. For example, the VaR for January 2008 is the minimum daily return of December 2007 times the square root of 22. The trading limit is $100,000 and the trader starts its trading on December 31, 2007 when he has a VaR for January and he can go long the IPC index.
   1. What is the exact Value-at-Risk confidence level for January 2008? Another way to put this question: what is the x% 1-day VaR for January 2008?
   2. What is the 1-month VaR for January 2008?
   3. What is the profit (or loss) for January 2008?
   4. What the profit (or loss) for December 2008?
   5. What is the cumulative profit (or loss) as of December 2008
2. Repeat question 1, but now compute the 5%-VaR using WHS. Multiply it by the square root of 22 to get the monthly VaR. Assume ɳ=0.9.
   1. What is the 1-month VaR for January 2008?
   2. What is the profit (or loss) for January 2008?
3. Repeat question 1, but now compute 5%-VaR using monthly returns and the Riskmetrics (JP Morgan) model with a λ=0.94. The starting value of the variance in the Riskmetrics model in January, 2001 is the sample variance.
   1. What is the 1-month VaR for January 2008?
   2. What is the profit (or loss) for January 2008?
   3. What the profit (or loss) for December 2008?
   4. What is the cumulative profit (or loss) as of December 2008?
4. Compute de 5% Expected Shortfall for January 2008 using the following methodologies
   1. Historical Simulation using 250 daily returns. Do not forget to multiply it by sqrt 22.
   2. The Riskmetrics model using the information from question 3.