

**MIDDLE EAST TECHNICAL UNIVERSITY**  
**Department of Computer Engineering**

**CENG567- Design and Analysis of Algorithms**

**Project Topics**

**Choose your project, write a short description of that project and submit it to me.**

**Due Date:** March 23, 2006

1. Amortized analysis and implementation of Fibonacci Heaps.
2. Implementation of at least two matrix multiplication algorithms and comparing them by profiling.
3. Proving the problem of determining if a schedule is view serializable NP-Complete and implementation of an algorithm.
4. Choosing a reasonably complex problem implementing one of the algorithms using one of the design techniques, Dynamic Programming, Branch and Bound, or Backtracking. The implementation must have a nice animation and nice interface showing how the algorithm works very clearly.
5. Choose a known NP-Complete or NP-Hard problem. First prove that problem to be NP-Complete or NP-Hard. And then implement one or two approximation algorithms of that problem with a nice interface showing how the algorithm(s) works very clearly.