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| **Course:**  | CS5961/6951 | *Computational Statistics* | Sp 2010 |
| **Instructor:** | R. F. Riesenfeld |  |  |
| **Date:** | 25 Jan 2010 |  |  |
| **Due:** | Wed 27 Jan 2010 |  |  |
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| **Assignment 1** | *Combinatorics* |  |

1. Suppose one has an ample supply of colored beads and a string, the tools for making a bead

necklace.

1. Specifying bead color and juxtaposition, and the like, develop some rule(s) for creating a particular style of necklace made with 100 beads. It can have a repeating fundamental pattern.
2. Clearly illustrate a scheme for counting the possible number of distinct necklaces that can be made from an adequate supply of beads and strings. The idea here is to create a nontrivial counting problem, and then present a solution for it.
3. Using a kind of pseudo-code develop and describe an algorithm for creating all the permutations of n distinct objects. Give an example for some small n that demonstrates that it works correctly.