

ESc101 : Fundamental of Computing

I Semester 2008-09

Lecture 34

- Fun : Tower of Hanoi - a classical recursive problem
- Binary Search
- Input/Output - Part 1
(using the existing classes and method of package java.io.*)

Tower of Hanoi

- There are three Towers : A,B,C
- Tower A has n discs arranged one above the other in the increasing order of the radii from top to bottom.
- The towers B and C are empty.
- We can move one disc only in a single step.
- **AIM** : Describe the steps to transfer all discs from tower A to tower B.

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Constraint : We can never place a bigger disc on a smaller one.

Design a method Tower_of_Hanoi(n)

which prints the detailed instruction about the movement of discs in order to transfer n discs from A to B .

Search

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what if we have to search 10^7 elements in an array of size 10^7

Binary Search : A powerful search algorithm

The code is given in file bin_search.java.

Input Output from/to Console

Classes used :

- InputStreamReader
- BufferedReader

An interactive program for sorting numbers

see the file selection_sort_i.java

Input Output from/to Console

1. Reading characters one by one from console :

see the file **Console_Chareader.java**

2. Reading Primitive types from console :

(first we read one complete input line as string and then convert that to the primitive type)

see the file **Interactively_reading_integers.java**

Input Output from/to File - without buffers

To be discussed in next class