**FACILITATOR’S MANUAL**

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| Facilitator’s manual is a guideline to facilitator. Guideline for which all topics /sub-topics to be covered and their sequence. When to go recap or hands-on and with which assignment (mapping of lab assignments with topics)  Basically WHAT–WHEN-HOW  Here, Whole session will be in multiple iteration of 3 steps;  1. What to facilitate, 2. Relevant LAB assignments, 3. Recap and leanings from LAB  Also, there are TIPS (extract from facilitator’s learning) – objective of TIPS is to incorporate best practice and individual’s innovation in facilitating a particular topic. It is desirable that new tips should continue to add/update in this manual.  At last, this is not a rulebook, so it is upto facilitator to follow it or use his/her own style |

**JAVA LANG PACKAGE**

**Objective -**  To understand important classes under Java Lang package like String, Math, Wrapper classes, StringBuffer / StringBuilder, and System Classes.

**ROUND 1**

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| Topics to be facilitated (teach) | * Math class * Various methods of Math class |
| LAB assignment | **LAB 5.1 \***  *Check the java math API on oracle’s (previously SUN) website), and use at least 15 method of Math class in your main class.* |
| Recap (learning from the LAB assignment) | All method of method class is Static  Math class have two properties E and Pi  Understand how to use various elementary exponential, logarithm, square root, and trigonometric functions of Math class |

\*TIPS TIME – Use some Math methods while teaching; it will give a head start to participant on how to understand method signature from API doc and practice it.

**ROUND 2**

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| Topics to be facilitated (teach) | **String**   * String is final class * Immutableness of String * Advantages of being immutable * String’s constructors * Creating string object by calling new operator and by direct assigning string value * Problem in concatenating a String with another String |
| LAB assignment | **LAB 5.2 \***  *Check the java math API on oracle’s (previously SUN) website), and use at least 15 method of String class in your main class.*  **LAB 5.3**  Instantiate a String object by two ways   1. calling new operator (String s1 = new String(“flp”)) 2. by directly assigning a String value (String s2 = “flp”)   Check whether s1 and s2 are same object or different. (use, == and equals() ) |
| Recap (learning from the LAB assignment) | Various methods and constructors of String |

\*TIPS TIME – Use some String methods (like subString, toUpperCase, etc.) while teaching; it will give a head start to participant on how to understand method signature from API doc and practice it.

**ROUND 3**

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| Topics to be facilitated (teach) | **StringBuilder and StringBuffer**   * Append method * Difference between string builder and buffer |
| LAB assignment | **LAB 5.4**  *Write a Stack class, using array; it should have Push and Pop method, and size of array will be assigned by calling class (i.e. each object of this stack class can have different stack size). Use this stack class to push and pop data*  *Now write a class (having main method) which will use this stack to push some values; now this class also show the data pushed into stack, The output info should be in a single line (user string buffer to append pop values and show the result)* |
| Recap (learning from the LAB assignment) | More understanding/practice of Array class  Use of StringBuilder/StringBuffer |

**ROUND 4**

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| Topics to be facilitated (teach) | **Wrapper class**   * Why wrapper class? What is use of wrapper class? * Various wrapper class * Various method of wrapper class |
| LAB assignment | **LAB 5.5**  *Write a program, which takes multiple numeric values from command line and program, will sort them into acsc and desc order and display*  **LAB 5.6 (8 assignment within this)**  *Check the java API for all wrapper classes on oracle’s (previously SUN) website, and use at least 15 method of all wrapper classes separately.* |
| Recap (learning from the LAB assignment) | Understand various Wrapper classes  Parse methods |

**ROUND 5**

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| Topics to be facilitated (teach) | **Wrapper class**   * Comparator method and its output for various wrapper class * Difference between comparator and comparable * Auto Boxing, un boxing |
| LAB assignment | **LAB 5.7**  *Create two variables of all Wrapper classes and initialize them with some value (Integer, Float, Long, Double, Boolean, Short, Byte and Character). Now use the comparator method of each Wrapper class to compare the respective variables, and come up with matrix of output in all case.* |
| Recap (learning from the LAB assignment) | Understand comparator method of Wrapper classes  Output of comparator method of different Wrapper class |

**ROUND 6**

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| Topics to be facilitated (teach) | **System class**   * Overview of system class * Various methods of system class |
| LAB assignment | **N/A** |
| Recap (learning from the LAB assignment) | System class |