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| Department of Software Engineering  Mehran University of Engineering and Technology, Jamshoro |

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| SWE411 – SOFTWARE DESIGN AND ARCHITECTURE | | | |
| Instructor | Mr. Arsalan Aftab Memon | **Practical/Lab No.** | 13 |
| Date |  | **CLOs** | 3 |
| Signature |  | **Assessment Score** | 0.4 Marks |

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| Topic |  |
| Objectives | * Procedural design (Pseudo code) |

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| Lab Discussion: Theoretical concepts and Procedural steps |

**Theory:**

**Pseudocode**

It is a detailed yet readable description of what a computer program or algorithm must do, expressed in a formally-styled natural language rather than in a programming language. It allows designers or lead programmers to express the design in great detail and provides programmers a detailed template for the next step of writing code in a specific programming language. It allows the designer to focus on the logic of the algorithm without being distracted by details of language syntax, Less costly to make changes at pseudocode stage. In general the vocabulary used in the pseudocode should be the vocabulary of the problem domain, not of the implementation domain

**Common action keywords used in Pseudocode**

* Several keywords are often used to indicate common input, output, and processing operations.
  + Input: READ, OBTAIN, GET
  + Output: PRINT, DISPLAY, SHOW
  + Compute: COMPUTE, CALCULATE, DETERMINE
  + Initialize: SET, INIT
  + Add one: INCREMENT, BUMP

**EXAMPLES OF SEQUENTIAL CONTROL**

* Example (non-computer)
  + Brush teeth
  + Wash face
  + Comb hair
  + Smile in mirror
* Example
  + READ height of rectangle
  + READ width of rectangle
  + COMPUTE area as height times width

**If-then-else construct in Pseudocode**

* Example

IF HoursWorked > NormalMax THEN

Display overtime message

ELSE

Display regular time message

ENDIF

**WHILE**

WHILE Population < Limit

Compute Population as Population + Births – Deaths

ENDWHILE

**EXAMPLE :**

* This example shows how pseudocode is written as comments in the source file
* public boolean moveRobot (Robot aRobot)   
  {   
      //IF robot has no obstacle in front THEN   
          // Call Move robot   
          // Add the move command to the command history   
          // RETURN true   
      //ELSE   
          // RETURN false without moving the robot   
      //END IF   
  }

**Another example**

* READ m.
* READ n.
* Initialize sum to 0.
* Repeat n times:  
  Increase sum by m.  
  End repeat.
* PRINT sum.

**TASK :**

* Write pseudocode for following:
* “Read” the price of an item, take a 20% discount, and display the original price and the discounted price on the console.
* Input five strings from user, and print them in alphabetical order. (Just assume all strings start with a different letter)