**Week 4- Programs on Iterative constructs, Lists and Tuples**

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| Program 1 | 1. Write a program to generate fibonacci series till n terms 2. Find factorial of a number 3. prints all prime numbers from 2 - n |
|  | **Algorithm:**  **a)**  **1)first establish the values from which fibonacci sequences start**  **2)then use identation and if and elif statements to code the**  **fibonacci sequence**  **b)**  **1)state the values and print there is no factorial for negative numbers**  **2)specify the condition for 0 and code the rest**  **c)**  **1)input the upper range**  **2)calculate the range** |
|  | **Program with comments:** |
|  | **Output:** |
| Program 2 | Write a python program to perform the following operations using given list as input:   1. **Given a heterogenous list, create separate lists for different types of data. Write a python program to achieve the same**. 2. **Sort in ascending and descending order**   **i)list of strings ii) list of number** |
|  | **Algorithm:**  **a)**  **1)set up different lists for different data type**  **2)append suiting the data type for the values**  **3)print the values**  **b)**  **1)list the names and numbers**  **2)use the sort function for sorting** |
|  | **Program with Comments:** |
|  | **Output:** |
| Program 3 | Generate heart rate randomly between 50 to 120 at time interval of 3 hours for 24 hours.   1. **If heart rate is between 50-65 print as bradycardia(lower heart rate) if greater than 100 print as tachycardia(higher heart rate). Else print as normal.** 2. **Count number of Bradycardia and tachycardia if any of this is greater than 3 display as risk.** 3. **Print the maximum heart rate and minimum heart rate** |
|  | **Algorithm:**  **I)import random to use random function**  **2)use random values and storing**  **3)calculate the maximum heart rate and minimum heart rate** |
|  | **Program with comments:** |
|  | **Output:** |
| Program 4 | Enter marks of students till you need to stop.   1. **Find maximum marks** 2. **Find number of students who have scored highest** 3. **Find second highest marks** 4. **Enter fail marks and remove if fail marks present in list** |
|  | **Algorithm:**  **1)input the marks**  **2)append the marks**  **3)use the sort function**  **4)delete the fail marks** |
|  | **Program with comment:** |
|  | **Output:** |
| Program 5 | Write a python program which accepts a sequence of comma-separated values from console and generate as a list and as a tuple. |
|  | **Algorithm:**  **1)input all the values**  **2)use the split function**  **3)print the extracted values** |
|  | **Program with comment** |
|  | **Output:** |