American International University-Bangladesh

Data Structure Lab

Fall 2023-2024

<u>**Marks: 20**</u>   <u>**Time: 2 hours**</u>

1) Initialize an integer array of **8 elements** from the user and print the **third smallest** and **third larger** numbers in that array.
   Sample output:

   > *Elements of array:* **4 1 3 9 6 2 7 5**
   > *Third smallest number:* **3**
   > *Third larger number:* **6**

2) Print the following pattern usings **loops**.

   > D
   > DSL
   > DSLAB
   > DSLABEX
   > DSLABEXAM

3) Implement basic stack operations of 20 size array using **class** and **struct**. Necessary functions:

   > *void isEmpty()*
   > *void isFull()*
   > *void Push(int element)*
   > *void pop()*
   > *void topElement()*
   > *void show()*