University of Central Punjab

**Faculty of Information Technology**

# Data Structures and Algorithms

# Spring 2023

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| **Graded Lab 01** | |  |
| **Topic** | * Stack |
| **Marks Distribution** | * sortStack() 7 Marks * printStack() 1 Marks * BasicOperations 2 Marks |  |
| **Time** | * 45 Mins |  |
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**Instructions:**

* Indent your code.
* Comment your code.
* Use meaningful variable names.
* Plan your code carefully on a piece of paper before you implement it.
* Name of the program should be same as the task name. i.e. the first program should be Task\_1.cpp
* **void main() is not allowed. Use int main()**
* **You have to work in multiple files. i.e separate .h and .cpp files**
* **You are not allowed to use system**("**pause**")
* **You are not allowed to use any built-in functions**
* **You are required to follow the naming conventions as follow:**
  + **Variables:** firstName; (no underscores allowed)
  + **Function:** getName(); (no underscores allowed)
  + **ClassName:** BankAccount (no underscores allowed)

**Students are required to complete the following tasks in lab timings.**

## Task 1

Write a C++ program to sort a Stack. You can use your previous code for the basic operations of Stack or write it from Scratch.

Note: Use Abstract Classes. Use proper cout statements where it needed.

**Expected Output:**

Stack before Sorting: 3,8,4,9,1 🡪 1 is the top element of Stack.

Stack after Sorting: 1,3,4,8,9 🡪 9 is the top element of Stack

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