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**Lab Journal # 2**

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Code: CSL-341

Mobile Application Development Lab

Credit Hr # 01

**Bahria University E8 Islamabad**

# Task 1:

**Program:**

int findLargest(List<int> numbers) {

  if (numbers.isEmpty) throw Exception("List is empty");

  int largest = numbers[0];

  for (int num in numbers) {

    if (num > largest) largest = num;

  }

  return largest;

}

void main() {

  List<int> nums = [10, 25, 5, 72, 30];

  print("Largest number: ${findLargest(nums)}");

}

**Output:**

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# Task 2:

**Program:**

List<int> mergeSort(List<int> list) {

  if (list.length <= 1) return list;

  int middle = list.length ~/ 2;

  List<int> left = mergeSort(list.sublist(0, middle));

  List<int> right = mergeSort(list.sublist(middle));

  return merge(left, right);

}

List<int> merge(List<int> left, List<int> right) {

  List<int> result = [];

  int i = 0, j = 0;

  while (i < left.length && j < right.length) {

    if (left[i] <= right[j]) {

      result.add(left[i]);

      i++;

    } else {

      result.add(right[j]);

      j++;

    }

  }

  result.addAll(left.sublist(i));

  result.addAll(right.sublist(j));

  return result;

}

void main() {

  List<int> nums = [38, 27, 43, 3, 9, 82, 10];

  print("Sorted list: ${mergeSort(nums)}");

}

**Output:**

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# Task 3:

**Program:**

class Stack<T> {

  final List<T> \_stack = [];

  void push(T value) {

    \_stack.add(value);

  }

  T pop() {

    if (isEmpty) throw Exception("Stack is empty");

    return \_stack.removeLast();

  }

  T peek() {

    if (isEmpty) throw Exception("Stack is empty");

    return \_stack.last;

  }

  bool get isEmpty => \_stack.isEmpty;

  int get size => \_stack.length;

}

void main() {

  Stack<int> stack = Stack<int>();

  stack.push(10);

  stack.push(20);

  stack.push(30);

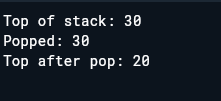
  print("Top of stack: ${stack.peek()}"); // 30

  print("Popped: ${stack.pop()}");        // 30

  print("Top after pop: ${stack.peek()}"); // 20

}

**Output:**

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**Regards**