Final Year B.Tech. (CSE) – VII [2024-25]

**6CS452: High Performance Computing Lab**

Assignment No: 4

# Date: 12/08/2024

**Study and Implementation of Synchronization**

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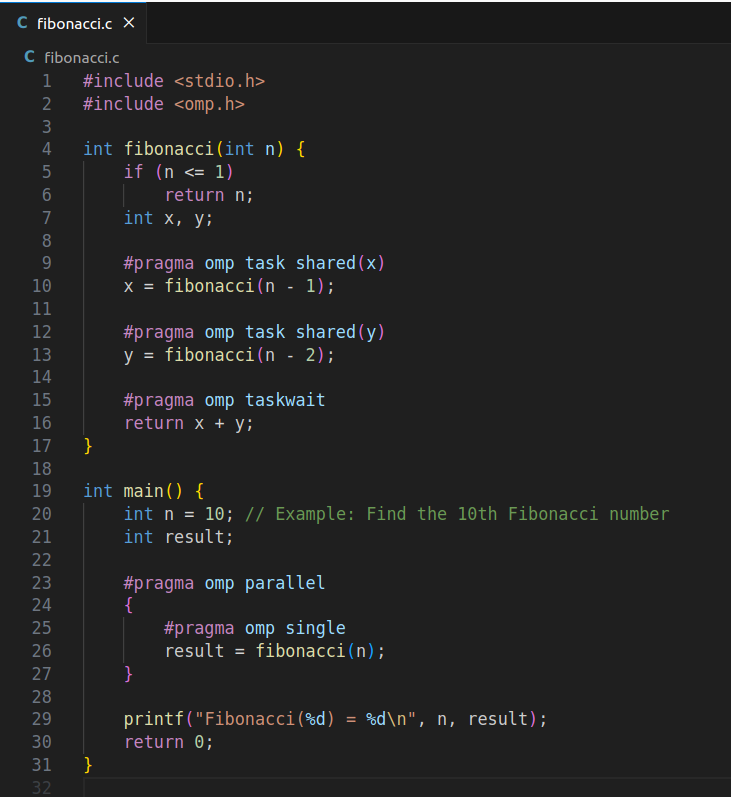
**Title:** Study and Implementation of Synchronization

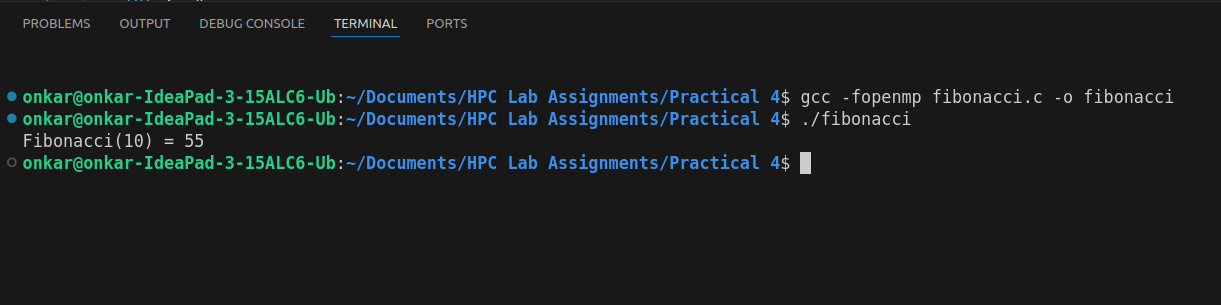
**Problem Statement 1: Fibonacci Computation using OpenMP with Synchronization**

# Analyse and implement a Parallel code for below programs using OpenMP considering synchronization requirements. (Demonstrate the use of different clauses and constructs wherever applicable)

# Fibonacci Computation:

**Screenshots:**





Information:

* The code uses #pragma omp task to parallelize the Fibonacci computation.
* The #pragma omp taskwait directive ensures synchronization between tasks.

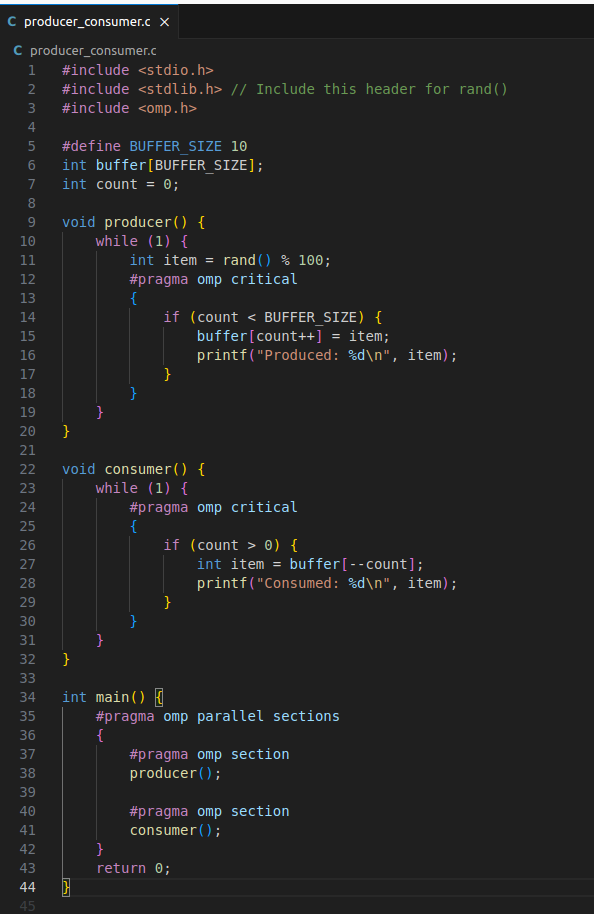
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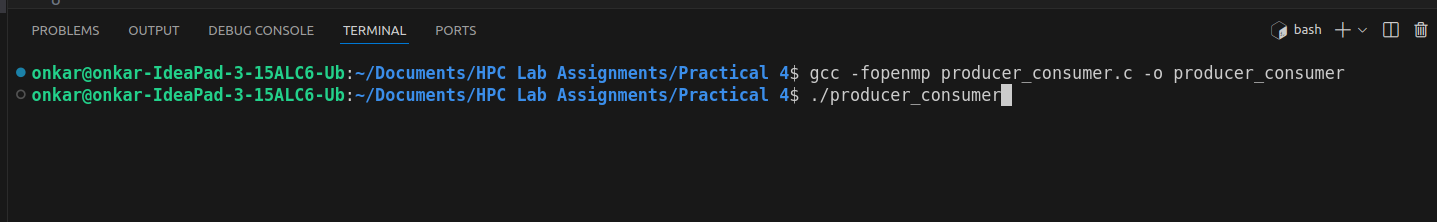
**Problem Statement 2: Producer-Consumer Problem using OpenMP with Synchronization**

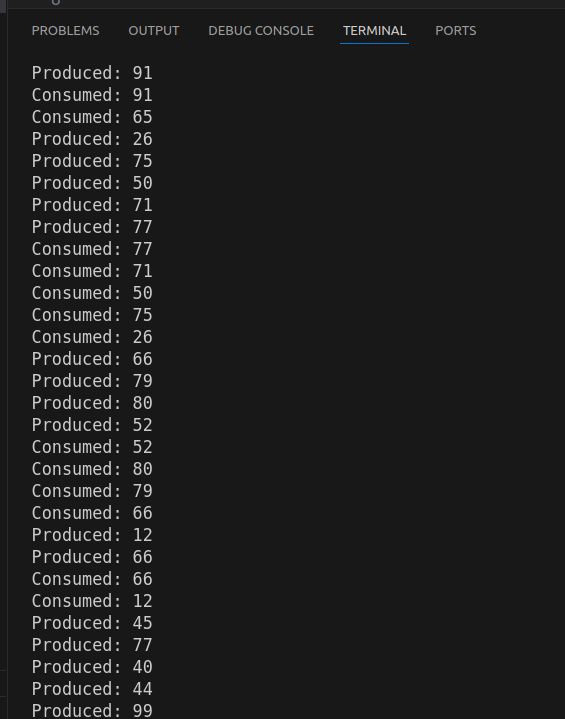
# Analyse and implement a Parallel code for below programs using OpenMP considering synchronization requirements. (Demonstrate the use of different clauses and constructs wherever applicable)

## Producer Consumer Problem

**Screenshots:**

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**Information:**

* The code uses #pragma omp sections to parallelize producer and consumer tasks.
* The #pragma omp critical directive ensures that only one thread modifies the buffer at a time, avoiding race conditions.

**Github Link:**

<https://github.com/onkaryemul/HPC-LAB-Assignments/tree/main/Practical%204>