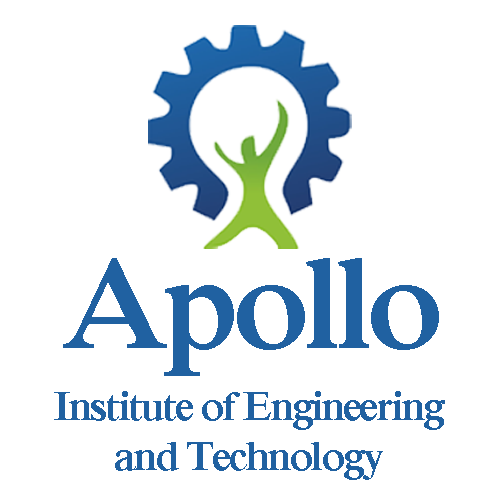
**Apollo Institute of Engineering**

(Approved by AICTE & Affiliated with Gujarat Technological University)



**Lab Manual Of**

**Object Oriented Programming using Java (2150704)**

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**Apollo Institute of**

**Engineering**

**Certificate**

# This is to certify that Mr./~~Ms~~. Patel Yash M. Enrollment No. 151280107042 of semester 5*th* branch Computer has satisfactorily completed his/her term work of subject Object Oriented Programming using Java(2150704) during the year 2017 to 2018.

Date of submission:

In-charge Faculty

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| 1 | Write a method for computing first n terms of Fibonacci sequence. Define method main taking value of n as command line argument and calling the method. |  |  |  |  |
| 2 | It is required to compute SPI (semester performance index) of n students of a class for their registered subjects in a semester. Assume that all students register for 6 subjects and each subject carry 5 credits. Also, follow GTU convention and method for computation of SPI. Declare a class called student having following data members: id\_no, grades\_obtained and spi. Define constructor, display and calculate\_spi methods. Define main to process data of n students. |  |  |  |  |
| 3 | Create a class called Student. Write a student manager program to manipulate the student information from files by using FileInputStream and FileOutputStream. |  |  |  |  |
| 4 | Refine the student manager program to manipulate the student information from files by using the BufferedReader and BufferedWriter. |  |  |  |  |
| 5 | Implement methods of String class and String buffer class. |  |  |  |  |
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| 6 | The abstract vegetable class has three subclasses named Potato, Brinjal and Tomato. Write a java prog. That demonstrates how to establish this class hierarchy. Declare one instance variable of type String that indicates the color of a vegetable. Crete and display instances of these objects. Override the toString() method of object to return a string with the name of vegetable and its color. |  |  |  |  |
| 7 | Write a program to demonstrate use of multiple inheritance. |  |  |  |  |
| 8 | Write a complete program to accept N integer numbers from the command line. Raise and handle exceptions for following cases : - when a number is –ve - when a number is evenly divisible by 10 - when a number is greater than 1000 and less than 2000 - when a number is greater than 7000 Skip the number if an exception is raised for it, otherwise add it to find total sum. |  |  |  |  |
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| 9 | Write a complete multi-threaded program to meet following requirements for producer-consumer threads: - Three threads – one producer and two consumers to be instantiated  in the method main. - At a time, the producer produces one integer information along with consumer\_id to represent id of a consumer that will consume produced information. - Information and consumer\_id are stored in a shared buffer. - The information produced is to be consumed by appropriate consumer only, as specified by the producer. - The producer thread produces total 6 information. |  |  |  |  |
| 10 | Prepare a class model to describe undirected graph. An undirected graph consists of a set of vertices and a set of edges. Edges connect pairs of vertices. Your model should capture only structure of graphs (i.e. connectivity) and need not be concerned with layout such as location of vertices or lengths of edges. |  |  |  |  |
| 11 | Prepare a sequence diagram for issuing book in the library management system. |  |  |  |  |
| 12 | Explain ‘ordered’, ‘bags’, ‘sequences’ in class diagram with suitable examples. |  |  |  |  |
| 13 | Prepare Use case Diagram for ‘Hospital Management”. |  |  |  |  |
| 14 | Explain Activity Diagram of College. |  |  |  |  |