~~number and course of study are also be maintained. For faculty employee id, department and specialisation are to be stored. One should be able to view the object details and set the attributes. For address, one may change it partially depending on the choice. Design and implement the classes.~~

7. Implement a multithreaded program in Java to solve the producer-consumer problem. Producer and Consumer are the two entities here who share the same buffer.

   The producer can either go to sleep or discard data if the buffer is full. The next time the consumer removes an item from the buffer, it notifies the producer, who starts to fill the buffer again. In the same way, the consumer can go to sleep if it finds the buffer to be empty. The next time the producer puts data into the buffer, it wakes up the sleeping consumer.

   An inadequate solution could result in a deadlock where both processes are waiting to be awakened.

8. Consider an employee has empcode (unique), empname, basic salary, grade, dept code. Develop GUI based application for the following:

   a) Develop GUI to accept data from user. For dept code, a list of dept names are to be shown from user chooses one and corresponding dept code will be part of employee object. Grade is either A or B or C. Once user selects SAVE button, get confirmation from user and if confirmed object is to be stored in file/collection class (as you like). Ensure empcode is unique. For duplicate value a message dialog is to be displayed and it will not be stored.

   b) Develop GUI that accepts an empcode from user. If SEARCH button is placed corresponding details are to be shown. If not found, display a message.