

# **CERTIFICATE IN MOBILE APPLICATION DEVELOPMENT (CMAD)**

## **Assignments**

**(January,2021 & July, 2021 sessions)**

**BCS-091, BCS-092, BCS-093, BCS-094, BCSL-091**

**Assignments**



**SCHOOL OF COMPUTER AND INFORMATION SCIENCES  
INDIRA GANDHI NATIONAL OPEN UNIVERSITY  
MAIDAN GARHI, NEW DELHI – 110 068**

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### Important Notes

1. Submit your assignments to the Coordinator of your Study Centre on or before the due date. Please refer to <http://www.ignou.ac.in> for latest updates
2. Assignment submission before due dates is compulsory to become eligible for appearing in corresponding Term End Examinations. For further details, please refer to BCA Programme Guide.
3. To become eligible for appearing the Term End Practical Examination for the lab courses, it is essential to fulfill the minimum attendance requirements as well as submission of assignments (on or before the due date). For further details, please refer to the BCA Programme Guide.

**Course Code** : **BCS-091**  
**Course Title** : **Introduction to Mobile Architecture**  
**Assignment Number** : **CMAD/091/Assignment /2021**  
**Maximum Marks** : **25**  
**Last Dates for Submission** : **31st May, 2021 (for January session)**  
**30<sup>th</sup> October, 2021(for July session)**

**This assignment has Four questions carrying a total of 25 marks. Answer all questions. You may use illustrations and diagrams to enhance your explanations.**

**Question 1:** (10 Marks)

Consider any two mobile apps which are in similar domain. For example, SWIGGY and ZOMATO. Now, compare them on the following parameters: (i) Ease of use (ii) Features (iii) Functionality . Make assumptions, if necessary.

**Question 2:** (5 Marks)

What are the latest versions of Android and iOS operating systems? List the differences between them.

**Question 3:** (5 Marks)

List the features of any one mobile processor which was recently (preferably) launched.

**Question 4:** (5 Marks)

List the features of any Mobile App Development tool

**Course Code** : **BCS-092**  
**Course Title** : **Introduction to Databases**  
**Assignment Number** : **CMAD/092/Assign /2021**  
**Maximum Marks** : **25**  
**Last Dates for Submission** : **31st May, 2021 (for January session)**  
**30<sup>th</sup> October, 2021(for July session)**

**This assignment has Four questions carrying a total of 25 marks. Answer all the questions. You may use illustrations and diagrams to enhance your explanations. Answer to each part of the question should be confined to about 300 words.**

**Question 1:** **(5 Marks)**

Design an ER diagram for a Library Management System (LMS) that issues books to its members. Clearly indicate the entities, relationships, cardinality and the key constraints. The description of the LMS is as follows:

The Library purchases ONLY one kind of items – the Books. Each book has an ISBN number; however, multiple copies of the books can be purchased by the library. You may note that these multiple copies will have same ISBN number. Each book is assigned a unique bookID. In addition, the book title and all the authors' names are to be stored. A book can be issued to a member for a period of 15 days. Each member can get at most 5 books issued in their membership id. Every member deposits a security amount, which is refunded at the expiry of the membership period, in case no book or fine is pending for that member. Membership of the library is given for a period of 2 years, beyond which a member has to get his/her membership renewed. The library charges an amount of Rs 5 per day, in case a member failed to return the book in the stipulated period. The LMS maintains the process of membership and issue and return of the books. The LMS also produces the report on books overdue, the books never issued, member who has not got even a single book issued in a year, most popular books, number of available copies of a book in the library of different ISBN numbers, etc.

**Question 2:** **(8 Marks)**

Design the Relational Schema for the E-R diagram that you have drawn for part *Question 1*. The relations must be at least in 3NF. Perform the following on the relations:

- a) Enter about 5 sets of meaningful data in each of the relations.
- b) Identify the domain of various attributes.
- c) Identify the Primary keys of all the relations.
- d) Identify the Foreign keys and referential integrity constraints in the relations.

**Question 3:** **(10 Marks)**

Answer the following queries using SQL for the database created in Question 1 and Question 2

- (i) List all the Books and number of copies of each book which were purchased.
- (ii) List all the members whose membership has expired.
- (iii) Find the list of pending books and pending fine for a given member Id.
- (iv) List the Books whose title includes the word *Database*.
- (v) List the books authored by author whose name is *Morris*.

- (vi) List the total fine received in the last month.
- (vii) List the books which were never issued
- (viii) List the name and membership id of the members who has not got even a single book issued in a year
- (ix) Find the most popular book of the library (the most popular book is the one which is issued most number of times, if a book has multiple copies then issue records of all these copies must be added)
- (x) Find the members who have got all five books issued to them, therefore, cannot be issued any more books

*Note: Make suitable assumptions, if any.*

**Question 4:**

**(2 Marks)**

Explain the relational model with the help of an example. What is the role of database administrator?

**Course Code** : **BCS-093**  
**Course Title** : **Introduction to Android**  
**Assignment Number** : **CMAD/093/Assign /2021**  
**Maximum Marks** : **25**  
**Last Dates for Submission** : **31st May, 2021 (for January session)**  
**30<sup>th</sup> October, 2021(for July session)**

**This assignment has two questions carrying a total of 25 marks. Answer all the questions. You may use illustrations and diagrams to enhance your explanations.**

**Question 1:** **(10 Marks)**

List the Android versions released till date. Mention the name and release date of version in a tabular form

**Question 2:** **(15 Marks)**

List and Explain various components of an Android Mobile App

**Course Code** : **BCS-094**  
**Course Title** : **Programming using PYTHON**  
**Assignment Number** : **CMAD/094/Assignment/2021**  
**Maximum Marks** : **25**  
**Last Date of Submission** : **31<sup>st</sup> May, 2021 (for January session)**  
**30<sup>th</sup> October, 2021(for July session)**

**There are Four questions in this assignment which carries 25 marks. Each question carries 5 marks. Answer all the questions. You may use illustrations and diagrams to enhance the explanations. Include the screen layouts also along with your assignment responses.**

**Question1:** Differentiate between the mutable and immutable data types? List all mutable and Immutable data types in Python and explain the functionality of each with suitable example code. **(5 Marks)**

**Question2:** List and Explain all the tests performed during the development of software and after the development of any software, separately. **(5 Marks)**

**Question 3:** Compare DBMS and RDBMS. What are integrity constraints? Discuss different types of integrity constraints. Also discuss the SQL CRUD statements used to perform database related activities by using PYTHON and SQL LITE. Give example code of each statement. **(8 Marks)**

**Question 4:** What is Kivy? Discuss the architecture of Kivy with the help of a suitable block diagram. **(7 Marks)**

**Course Code** : **BCSL-091**  
**Course Title** : **Laboratory Course**  
**Assignment Number** : **CMAD/L-091/Assign/2021**  
**Maximum Marks** : **25**  
**Last Date of Submission** : **31<sup>st</sup> May, 2021 (for January session)**  
**30<sup>th</sup> October, 2021(for July session)**

**This Assignment carries practical questions from the course BCS-092 for 5 marks, and from the courses BCS-093 and BCS-094 for 10 marks each, respectively. Answer all the questions. You may use illustrations and diagrams to enhance the explanations. Include the screen layouts also along with your assignment responses wherever necessary.**

**Section-1: Introduction to Databases(BCS-092) (5 Marks)**

**Question1:** Consider the following *relational schema*:

***STUDENT (ENo, SName, PCode, Yearofenrolment)*** – *ENo* is enrolment number (Primary Key), *SName* is student name, *PCode* is Programme Code (Foreign Key), *Yearofenrolment* is the year of enrolment of the student.

***Programme (PCode, PName, Duration)*** – *PCode* is Programme Code (Primary Key), *PName* is Programme name, *Duration* is the duration of the Programme.

***Course (CourseCode, CourseName, Credits)*** – *CourseCode* is Course Code (Primary Key), *CourseName* is Course name, *Credits* is the credits of a course.

***ProgrammeCourse(STUDENT (PCode, CourseCode))*** (The composite Primary Key is *PCode* + *CourseCode*. Please identify the foreign keys)

- (a) Create the tables using SQL from the schema as given above; you must include Primary key, foreign keys and constraints in your implementation. Enter few sets of meaningful data in each table.
- (b) Write and run SQL statements for the following queries:
- (i) List the students of CMAD programme
  - (ii) List course names of all the courses of CMAD programme
  - (iii) Find the total credits to be taken for each programme
  - (iv) List the courses which are part of more than one programme
  - (v) List the students who have joined any programme prior to 2020.

**Note:** Make suitable assumptions, if any.



## **Section-2: Introduction to Android (BCS-093) (10-Marks)**

**Question2:** Download and Install Android Studio from <https://developer.android.com/studio> After referring to *User Guide* and other content , run a sample mobile APP on your mobile. Make necessary assumptions.

## **Section-3: Programming using Python (BCS-094)(10-Marks)**

**Question 3:**Develop a GUI (details given below)by Using Tkinter and wxPython, compare the code complexity of both and give your observations.

Details of GUI : the GUI should accept the personal details of person like Name, DOB, Email, Mobile, Blood Group (A+,B+,O+,A-,B-,O-, etc.), Nature of Job (Permanent, Temporary, contractual, daily wage etc.), Diabetic (Yes,NO), Health Summary etc. use suitable components like text box, combo box, list, Radio Button, Check Box, Buttons etc. Make suitable assumptions wherever necessary.