

Time: 2 Hours

- Write your Roll No. on the top immediately on receipt of the question paper.
- Attempt ALL questions by selecting any TWO parts. All questions carry equal marks.

1. (a) What is a database? What are the characteristics of the database?  
 (b) Who are the actors on the scene and the workers behind the scene?  
 (c) Describe the 3-tier schema architecture. Why do we need mappings between schema levels?
2. (a) Explain the 'Degree of a Relationship type'. What is the 'Cardinality Ratio' for binary relationships?  
 (b) What are the main symbols used in the E-R diagram? Make the E-R diagram of a University database.  
 (c) Explain binary and ternary relationship types giving examples.
3. (a) Explain concept of 'Generalization' and 'Specialization' using example of Vehicle entity.  
 (b) Explain the Select and Project operations with suitable examples. Given the following database relation: EMPLOYEE (ssno, emp\_name, emp\_dob, emp\_deptt, emp\_sal). Write a relational algebra query to solve the following: Select the tuples for all employees who either work in department 4 and make over \$25000 per year or work in department 5 and make over \$30000 per year  
 (c) Consider the relation CLASS (Course#, Univ\_Section#, Instructor\_name, Semester, Building\_code, Room#, Time\_period, Weekdays, Credit\_Hours). This represents class taught in a university with unique Univ\_section#. Identify what you think should be various candidate keys and write the constraints under which the candidate key is valid.
4. (a) What is the PL/SQL code block? Write a PL/SQL program to find minimum of two numbers and display the smaller value.  
 (b) For the following table write SQL queries as per the questions:-

Table name : Client\_master

Column Name	Data Type	Size
Client_no	Varchar2	6
name	Varchar2	20
Address1	Varchar2	30
Address2	Varchar2	30
City	Varchar2	15
pincode	number	8
state	Varchar2	15
Bal_due	number	10,2

Data for client\_master:

Client_no	name	city	pincode	state	Bal_due
C00001	Ivan Bayross	Delhi	400054		15000
C00002	Vandana	Madras	780001	Tamil Nadu	0
C0003	Pramala	Bombay	400057	Maharashtra	5000
C0004	Basu	Delhi	100045		2000

- i) Retrieve the list of names and the cities of all the clients.
- ii) List all the clients who are located in Delhi.
- iii) Change the bal\_due of client\_no 'C00001' to Rs. 500.
- iv) Add a column called 'telephone' of data type 'number' and size = '10' to the client\_master

- 5
- (c) Explain the various cursors found in Oracle. What is the functionality of open, close and fetch commands?
- (a) Make the State transition diagram stating the states for transaction. What are the various types of log records?
- (b) What is Functional Dependency? Explain the second normal form with a suitable example.
- (c) Discuss the purpose of Boyce-Codd normal form and describe how BCNF differs from and is stronger than 3NF.

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**MCA (SEM III) EXAMINATIONS - 2018**  
**Analysis and Design of Algorithms**

Time: 2 Hours

Max Marks: 75

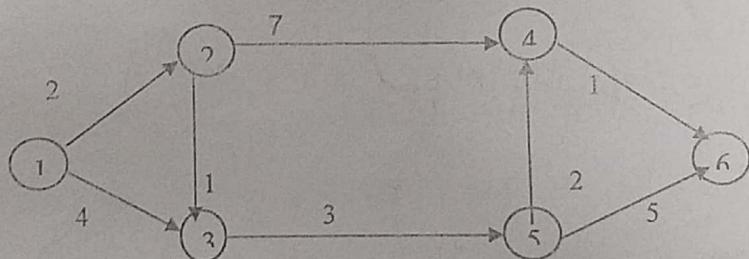
- Write your Roll No. on the top immediately on receipt of the question paper.
- Attempt ALL questions by selecting any TWO parts. All questions carry equal marks.

1. **(a)** Explain the various Asymptotic notations used in determining the time complexity of an algorithm.
- (b)** Solve the following recurrence relation using Master's theorem  

$$T(n) = \sqrt{2}T\left(\frac{n}{2}\right) + \log n$$
- (c)** Explain Divide and Conquer strategy. Using this strategy discuss Strassen's Matrix Multiplication
2. **(a)** State and explain the principle of optimality. Use an example to explain the difference between the divide and conquer and dynamic programming approach.
- (b)** What is Longest Common Subsequence (LCS) problem? Explain it by using an example and applying Dynamic Programming approach
- (c)** Apply chain matrix Multiplication problem for the following four matrices whose dimensions are as follows:  
 $M_1=13 \times 5 \quad M_2=5 \times 89 \quad M_3=89 \times 3 \quad M_4=3 \times 34$

3. **(a)** Explain the Greedy approach to solve a particular problem. Explain Prim's algorithm for finding the minimum cost spanning tree by applying greedy approach.

- (b)** Apply Dijkstra's algorithm for Single shortest path for the following problem



- (c)** Explain Huffman coding scheme. Use the following chart to generate variable length code and compare with the fixed length coding scheme.

Characters:	A	B	C	D	E
Frequency:	3	5	6	4	2

4. **(a)** What is a State Space Tree? Explain Pruning of State Space Tree in Backtracking Strategy. Draw a State Space Tree using an example.
- (b)** What is 4- Queens' problem? Discuss the backtracking strategy to solve this problem.
- (c)** Discuss 0/1 Knapsack Problem using Backtracking strategy
5. **(a)** Explain the Branch and Bound technique. Taking example of 4 - Queens problem explain the difference between two types of branch and bound techniques
- (b)** Explain P, NP, NP complete and NP hard problems. Give an example of each
- (c)** What are randomized algorithms? Give some suitable examples



**MCA (SEM-III) EXAMINATIONS - 2018**  
**Computer Networks and System Administration**

Time: 2 Hours

Max Marks: 75

- Write your Roll No. on the top immediately on receipt of the question paper.
- Attempt ALL questions by selecting any TWO parts. All questions carry equal marks.

1. (a) For each of the following four networks, discuss the consequences if a connection fails. Five devices arranged in a:
  - i. Mesh topology.
  - ii. Star topology.
  - iii. Bus topology.
  - iv. Ring topology.(b) Draw a hybrid topology with a star backbone and three ring networks.(c) Briefly explain the functions and services of various layers of the OSI reference model.
2. (a) Given the dataword 1010011110 and the divisor 10111, show the generation of the codeword at the sender site (using binary division). Also, show the checking of the codeword at the receiver site (assume no error).  
(b) Compare and contrast the Go-Back-N ARQ Protocol with Selective-Repeat ARQ.  
(c) Explain why collision is an issue in a random access protocol but not in controlled access or channelizing protocols. Illustrate with an example.
3. (a) An organization is granted the block 211.17.180.0/24. The administrator wants to create 32 subnets. Find the subnet mask, number of addresses in each subnet, and the first and last addresses in subnet 1.  
(b) Illustrate distance vector routing and the count-to-infinity problem associated with it.  
(c) Explain the procedure for checksum calculation and verification in the IPv4 protocol. What part of an IPv4 packet is covered in the checksum calculation? Why? Are options, if present, included in the calculation?

4. (a) Briefly explain TCP segment header and its various components.
- (b) A TCP connection is using a window size of 10,000 bytes, and the previous acknowledgment number was 22,001. It receives a segment with acknowledgment number 24,001 and window size advertisement of 12,000. Draw a diagram to show the situation of the window before and after.
- (c) Illustrate congestion control mechanism in TCP.
5. (a) Windows Server provides tools to manage and monitor server operation and resources, including the performance monitor and windows system resource manager. Briefly explain each one.
- (b) Specify and discuss about the most important default domain local groups and special identity groups in Windows Server.
- (c) Write short notes on DNS.

## MCA (SEM-III) EXAMINATIONS, 2018

## Software Engineering with Minor Project

Time: 2 Hours

Max Marks: 75

- Write your Roll No. on the top immediately on receipt of the question paper.
- Attempt any two parts from each question. All questions carry equal marks.

1. (a) Describe how the law of unintended consequences applies to computer software. Explain with significant instances.  
  
(b) Why is it important to understand customer's problem before creating a solution? Discuss how a problem domain is different from solution domain. Elaborate with an example of your choice.  
(c) What characteristic differentiates WebApp from other software Applications? List these characteristics and discuss any five of them.
2. (a) What is a software process? What are its elements? Precisely describe a process framework. Identify work tasks for '*requirements gathering*' in the case of both small and large/complex software projects, and explain how these task-sets are different in their depth and formality.  
  
(b) How does a framework activity change as the nature of the project changes? For a system you are familiar, develop a set of actions for the '*communication*' activity. Select one action out of these and define task set for it.  
  
(c) What are Evolutionary Process Models? Enumerate advantages and disadvantages of any one of them. Identify situation where these models are appropriate choice.
3. (a) Write down the generic task set for design. Draw a suitable diagram to explain how an analysis model is translated / transformed into design model.  
  
(b) Design model can be visualized in two dimensions. Briefly explain these dimensions. Illustrate with diagram.  
(c) Why should you strive to create independent modules, but avoid over-modularity and under-modularity? What is the right number of modules in a given system? Explain and give reason.
4. (a) In order to manage a successful software project, you have to understand/sense what can go wrong so that problems/issues can be avoided. What are the signs that a project is in jeopardy? Describe FIVE point commonsense approach that you as a manager would apply to avoid problems with a project.  
  
(b) Enumerate good and bad characteristics of software professional. What steps would you take as a team lead to motivate your subordinates and involve them in the project as per their potential? What do you think motivates a person or a team to work and perform well?  
(c) Why is it necessary to plan a proper schedule for project? List fundamental principles that guide software project scheduling. Discuss these principles with reference to a project you are familiar with.
5. (a) Define and categorically distinguish between following pair of terms :  
i) Verification and Validation    ii) Re-testing and Regression testing  
  
(b) Distinguish between WBT and BBT. What aspects do you test in BBT (Black Box Testing)? Discuss any one of techniques used for BBT.  
(c) What is software testing? Why is it necessary? Cite three recent instances of real time *software failure* to explain the significance and relevance of testing in present context.

MCA (3<sup>rd</sup> semester) EXAMINATIONS – 2018  
Scientific and Statistical Techniques Using FORTRAN/ R

Time: 2 Hours

Max Marks: 75

- Write your Roll No. on the top immediately on receipt of the question paper.
- Attempt ALL questions by selecting any TWO parts. All questions carry equal marks.

1. (a) Solve the following system of linear algebraic equations using Jacobi's method.

$$5X_1 + 2X_2 + X_3 = 12$$

$$X_1 + 4X_2 + 2X_3 = 15$$

$$X_1 + 2X_2 + 5X_3 = 20$$

- (b) Describe successive approximation method and derive its iterative formula by any one method. What is the condition for convergence? One root of the equation  $3X - 2e^x = 0$  lies near  $x=2.5$ . Find that root with tolerance 0.0001.
- (c) Write a program in FORTRAN/R to implement any one of the iterative methods to solve non-linear equations.

2. (a) Given the table of values as.

X	2.0	2.25	2.50	2.75	3.0
Y(x)	9.00	10.06	11.25	12.56	14.00

Find the Y(2.35) using any method

- (b) Derive formula for Simpson  $\frac{3}{8}$ <sup>th</sup> Rule.
- (c) Find the solution, correct to three decimal points, of the following ODE.  

$$\int \frac{dy}{dx} = x + y^2$$
 for  $x=0.1$  when  $y(0)=1$ .

3. (a) The following data gives the marks obtained by 10 students in mathematics and statistics:-

Mathematics	45	70	65	30	90	40	50	75	85	60
Statistics	35	90	70	40	95	40	60	80	80	50

Calculate correlation and interpret the result.

- (b) Explain the following with the help of examples:-
- (i) Mean, Median and Mode
  - (ii) Quartile and Percentile
- (c) Calculate Q1 and Q2 (quartiles) from the following frequency distribution:

Class Interval	10-15	15-20	20-25	25-30	30-40	40-50	50-60	60-70
frequency	4	12	16	22	10	8	6	4

4. (a) A bag contains 5 white and 3 black balls. Two balls are drawn at random one after the other without replacement. Find the probability that both the balls drawn are black.
- (b) Explain the following terms with the help of examples:-
- (i) Sample space, event and equally likely event
  - (ii) Conditional probability
- (c) Write a program in FORTRAN to calculate Variance and Standards deviations

5. (a) The following observed data are presented in the table. Apply ANOVA to interpret the observed data.. It is given that the critical value=6.93.

GROUP A:	35	34	34	33	34
GROUP B:	32	32	31	28	29
GROUP C:	34	33	32	32	33

(b) What is ANOVA? What are the various steps and formula to calculate one way ANOVA? Also, explain its applications.

(c) Write notes on t-test and F-test.

**CBCS for PG (SEM-III) EXAMINATIONS - 2018****Advance Problem Solving using Java Programming****Time: 2 Hours****Max Marks: 75**

- Write your Roll No. on the top immediately on receipt of the question paper.
- Attempt ALL questions by selecting any TWO parts. All questions carry equal marks.

1. (a) Write down description with example of at least four new features introduced in Java 9 and Java 10.  
 (b) How Java is a compiled as well as interpreted language? Write down at least two most serious deficiencies in Java.  
 (c) What is an Applet? Explain with a programming example. How is it useful?
2. (a) What do you mean by Autoboxing? Write down few applications of Cosmic Super class 'Object' with example(s).  
 (b) What is Java Reflection? How is it useful? Explain with suitable example.  
 (c) Design a class Registration in Java consisting of loginID, password, name, address, city, mobile, email with necessary parameterized constructors and getter methods. The policy for the password is as follows
  - i) at least 8 characters in length
  - ii) no space
  - iii) at least one Upper character and number.
 Implement the password validation policy within constructors. Demonstrate the working of the class in the main program.
3. (a) What are the benefits of generic programming? Also write down the restrictions and limitations of generic programming.  
 (b) Compare and contrast among StringBuffer, StringBuilder and StringTokenizer string handling classes. Write a program to tokenize the names of the publishers from the following sentence: "Oxford University Press, Cambridge University Press, Springer-Nature, Elsevier, TMH, Pearson's"  
 (c) Define a generic class to maintain a two-dimensional array of generic types. The size of the array is passed through constructor, which also performs necessary memory allocation. The class contains a method genericSum() that returns the summation of the array. Test the working of the above class in the main program on different types of data (such as integer, floating point).
4. (a) Write a short note on Collection framework. How a Map is different from Collection interface?  
 (b) What is a daemon thread? How can we alter the priority of Java thread? Describe with example(s).  
 (c) Write a Java program to create a thread which generates a unique serial number starting from 1 and goes up to 10,000. If an upper limit is reached, the counter is reset to zero. Demonstrate the working of the thread in the main program.
5. (a) What are different swing components? Explain any one with example. Also depict AWT Event hierarchy with a neat diagram.  
 (b) Differentiate between Statement and PreparedStatement? How transactions are handled using JDBC APIs?  
 (c) A librarian wanted to digitize the book stock register and willing to store information such as AccessionNo, Title, Authors, Publishers, Price and NoOfCopies to a database. Write a Java program which accepts these information from the user, connect to the database and store it to a database table. Assume that table scheme already exists within the database. Make necessary assumptions about database driver.



Department of Computer Science, Jamia Millia Islamia  
First Internal Assessment Test (MCA CSCC36)-2018  
MCA-3<sup>rd</sup> Semester

Paper: Scientific and Statistical Technique using FORTRAN/R

Time: 1hr (2.00PM - 3.00PM)

Max Marks:15

Note: Attempt all the questions.

Date: 10/9/18

- Q1a Derive formula for ~~false~~ Newton Raphson method for finding root of non-linear equation. <2>  
b. Find root of the following non-linear equation. Initial approximation is 2 ~~and~~ 3 ~~or~~ <2>  
~~X<sup>3</sup>-4X-9=0~~ ( upto five iterations only) <5>  
c. Write a program to implement the aforesaid method. <3>

- Q2. Solve the following using Jacobi's method. <5>

$$10x_1 + x_2 + 2x_3 = 44$$

$$2x_1 + 10x_2 + x_3 = 51$$

$$x_1 + 2x_2 + 10x_3 = 61$$

DEPARTMENT OF COMPUTER SCIENCE  
Jamia Millia Islamia

## **SESSIONAL TEST - I**

Attempt any **THREE** of the following questions.  
All questions carry equal marks. Restrict to the relevant answers only.

DEPARTMENT OF COMPUTER SCIENCE

SESSIONAL I - COMPUTER NETWORK & SYSTEM ADMINISTRATION (CSCC 35), MCA-II-I & SEM  
TIME: 60 mins M.M.: 15 DATE: 12-09-18

NOTE: ATTEND ANY THREE QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS. GIVE PROPER JUSTIFICATION FOR ANSWERS.

- (1) Illustrate the solution to the problem of preventing the sender from flooding the receiver with frames faster than the latter is able to process.
- (2) Illustrate the solution of the problem occurred as a consequence of the rule requiring a sender to wait for an acknowledgement before sending another frame.
- (3) Briefly discuss TCP/IP reference model.
- (4) What is a simple parity-check code and what type of errors can be detected by using it?
- (5) What is framing? Briefly explain any two methods for framing.

Department of Computer Science  
MCA Sem III  
DBMS: Sessional I

Answer all questions.

Time: 1 hr.

Q1) Attempt all:

(2+3 marks)

- a) Explain database, field, record and schema.
- b) What is Metadata? Explain its varieties.

Q2) Attempt all:

(1+2+2 marks)

- a) Write SQL query to obtain names of clients based in either Kolkata or Chennai from the client\_master table.
- b) Explain the various keys found in databases.
- c) Explain use of wildcard characters in Oracle with some example.

Q3) Attempt all:

(2+3 marks)

- a) Write a PL/SQL program to enter the radius of a circle and print its area.
- b) What are cursors in Oracle? Explain its types and attributes.

Department of Computer Science  
Janta Millia Islamia  
I<sup>n</sup> Mid Semester Examination-2018  
MCA-II<sup>nd</sup> Semester  
Analysis and Design of Algorithms (CSCC34)

Maximum Marks: 15

Maximum Time: 01 Hour

Note: Attempt any two questions from the following:

(7.5×2=15)

Q1. Discuss in brief the various Asymptotic Notations used in analysis of algorithms.

Q2. Solve the following recurrence relation using Master Theorem

$$T(n)=2T(n/2)+n\log n$$

Q3. Discuss the time complexity of Binary Search in Divide and Conquer strategy.

DEPARTMENT OF COMPUTER SCIENCE  
SESSIONAL II- COMPUTER NETWORKS (CSCC 35), MCA-III SEM

M.M. : 15      DATE 14-11-18

TIME: 60 mnts

NOTE: ATTEMPT ANY *three* QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS. GIVE PROPER JUSTIFICATION FOR ANSWERS.

- (1) An address in a block is given as 180.8.17.9. Find the number of addresses in the block, the first address, and the last address. Show a possible configuration of the network that uses this block.
- (2) Illustrate IP protocol header.
- (3) Discuss any two services provided by the network layer.
- (4) Show the method and find the class of each address:  
a. 00000001 00001011 00001011 11101111      b. 11000001 10000011 00011011 11111111  
c. 10100111 11011011 10001011 01101111      d. 11110011 10011011 11111011 00001111

**Internal Assessment Test MCA 3<sup>rd</sup> Semester**

**Course title: Scientific and Statistical Techniques using Fortran/R**

**Course Code: CSCC36**

**(2<sup>nd</sup> Test): 2018**

**Attempt all the Questions:**

**MM: 15**

**Date: 12/11/18**

**Time: 1 hr.**

Q1. The following observed data are presented in the table. Apply ANOVA to interpret the observed data. Critical value is 4.26. <5>

A:	35	34	34	33	34
B:	32	32	31	28	29
C:	34	33	32	32	33

Q2a. Explain the following with the help of suitable examples <2>

- i. Variance
- ii. Correlation

b. Write a program in FORTRAN to find Mean, SD, and Correlation. <3>

Q3a. An I-Q Test was administered to 5 persons before and after they are trained the results are given below:

Candidates	I	II	III	IV	V
IQ before training	110	120	123	132	125
IQ after training	120	118	125	136	121

Test whether there is any change in IQ after training. It is given that  $t_{9,01}=4.6$  for df 4. <3>

b. Explain chi-square test with the help of suitable examples. <2>

Department of Computer Science  
Jamia Millia Islamia  
II<sup>nd</sup> Sessional Examination  
MCA-III<sup>rd</sup> Semester  
Analysis and Design of Algorithms (CSCC34)

Maximum Marks: 15

Maximum Time: 01 Hour

Note: Attempt the following questions. All questions carry equal marks  $(5 \times 3 = 15)$

- Q1. Discuss in brief the Prim's Algorithm for finding the minimum cost spanning tree.
- Q2. What is Huffman coding scheme? Take an example and explain it.
- Q3. Consider the 0/1 Knapsack instance.

$N=3$   $[W_1, W_2, W_3] = [100, 10, 10]$  and  $[p_1, p_2, p_3] = [20, 15, 15]$  and  $M=105$ .

Solve it using Greedy approach.

DEPARTMENT OF COMPUTER SCIENCE  
Jamia Millia Islamia

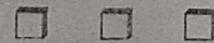
SESSIONAL TEST - II  
(Odd Semester, 2018-19)

Course: CBCS for PG (Sem-III) Subject: CBCS31 (Adv. Prob. Sol. usi)  
Duration: 1 hour Max. Marks: 15

Attempt ALL the questions.

All questions carry equal marks. Restrict to the relevant answers only.

1. What do you mean by generic methods? Write down restrictions and limitations of generic programs.
2. What is a Thread-Safe collection? Explain the working of HashSet with a program example.
3. Write short answers of the following questions in one sentence(s) only: (1x5=5)
  - i. Purpose of `Class.forName()`.
  - ii. Role of Statement objects in JDBC.
  - iii. Purpose of synchronized keyword.
  - iv. What is a Daemon thread?
  - v. Purpose of `throws` keyword.



**LAB TEST (MCA-III) (Odd Semester, 2018-19)**

**SET - A**

Attempt any ONE of the following:

1. Write a menu-driven Java program using a suitable Collection to perform the following operations:
  - a. Store list of marks of n students in the form of enrolment\_no and sgpa pairs.
  - b. Delete the details of a particular student.
  - c. Display the list of students in tabular form order by their sgpa.
2. Write a Java program that defines a generic bubbleSort() method which sorts the content of generic array using bubble sort algorithm. Demonstrate the working of the generic bubbleSort() method by taking array of different data types.

SET- D

Code: CSCC 35

Roll No... 17 MCA 026

MCA (SEM-III) Lab- EXAMINATION – 2018, Computer Networks and System Administration

Write the source code, compile, and test the following program in one of the programming language of your choice:

1. To simulate the shortest path routing algorithm (Dijkstra).
2. To simulate simple parity-check code (even).
3. To find first and last address in a block given any addresses in the block and assuming classless addressing

**MCA 3<sup>rd</sup> Semester 2018**  
**Lab Exam**

**Note: Attempt any two of the following questions.**

**Time: 2 hr.**

**Q1.** Write a Program to solve the following system of linear equations using any relevant method

$$\begin{aligned} 2x_1 + 3x_2 + 4x_3 &= 20 \swarrow \\ 4x_1 + 2x_2 + 3x_3 &= 17 \\ x_1 + 4x_2 + 2x_3 &= 17 \end{aligned}$$

**Q2.** Write a program to solve the following equation using Newton Raphson Method

$$F(x) = x^3 - 4x - 9 = 0$$

where the root lies between 2.625 and 3.0.

**Q3.** Write a Program to evaluate  $\int_{0.2}^{1.5} e^{-x^2} dx$  correct to four significant digits using any integration method.

SET-C

MCA III-Semester ADA (CSCC34) Lab Exam -2018

Attempt the following.

- Q1. Write a program to implement Binary Search Algorithm
- Q2. Write a program to implement Longest common subsequence problem using Dynamic Programming approach.

17MCA026

### Set 1

Q1: Write a PL-SQL script to compare three given numbers and display them in ascending order.

Q2: For the following relation schema:

*employee(employee-name, street, city)*  
*works(employee-name, company-name, salary)*  
*company(company-name, city)*  
*manages(employee-name, manager-name)*

Find the names of all employees in the database who live in the same cities as the companies for which they work.

CBCS for PG (SEM-III) EXAMINATIONS - 2018  
CBCS31: Advance Problem Solving using Java Programming (Lab)

Time: 2 Hours

Set 'C'

Attempt any ONE of the following:

1. A university department stores the marks obtained by the students in a two-dimensional array. The rows represent the marks of a particular student and columns represent marks obtained in different courses. The aggregate percent marks of each student can be calculated by adding each row value divided by number of course (assume that highest marks of each course is 100). Write an application that should ask the user to input number of students and number of courses, allocate necessary memory space as two-dimensional integer array. Also ask the user to enter marks of each student in each course and store it to the allocated array. Calculate the percent marks of each student and calculate and display the following aggregate percent marks frequency distribution table:  
(a) 80 - 100  
(b) 60 - 79  
(c) 40 - 59  
(d) < 40
2. Write a GUI application using swing that calculates the income tax of a person. The program takes annual income (in lakhs) and sex of the person as input through text box, and calculates & display the income tax of the person based on the following criteria:

Sex	Annual Income (lakh)	Income Tax Rate	Sex	Annual Income (lakh)	Income Tax Rate
Male	<= 2.5	Nil	Female	<=3.0	Nil
	>2.5 but <=5.0	@ 5% of taxable portion		>3.0 but <=5.0	@ 5% of taxable portion
	> 5.0 but <=10.0	@ 20% of taxable portion		> 5.0 but <=10.0	@ 20% of taxable portion
	>10.0	@ 30% of taxable portion		>10.0	@ 30% of taxable portion