SASTRA DEEMED UNIVERSITY

(A University under section 3 of the UGC Act, 1956)

End Semester Examinations

Dec 2023

Course Code: **CSE332**

Course: **USABILITY DESIGN OF SOFTWARE APPLICATIONS**

QP No. :**UD392-7**

Duration: **3** hours

Max. Marks:**100**

PART - A

Answer all the questions **10 x 2 = 20 Marks**

1. Sujatha wants to withdraw Rs. 2000/- from an ATM machine. Dramatize the interactions between Sujatha and ATM machine to carry out the task?

2. Imagine the following scenario: Arun is staying at a hotel for a week while on a business trip. He discovers he has left his mobile phone at home. He should rely on the hotel's voice-mail facility to find out messages. To access/send a message, Arun should touch 491, touch *, room number, #, password at appropriate times. List the *problems* Arun might be facing with this facility.

3. Mala focuses on solving an identified problem with an existing product. How does she begin thinking through the problem space?

4. Recognize different types of 'Attention' – a cognitive process, with two examples each.

5. Joe's father advises Joe to study well for the upcoming semester exam. Joe misunderstands what has been communicated as there is a breakdown in their conversion, how does Joe's father repair the mistake and be more explicit to Joe.

6. 'ACS' company is collaboratively working with 'ECS' company for developing an interactive product. They often conduct video conferencing meetings to update each other. Identify the problems that plagues this type of video communication-based collaboration.

7. A software company uses a process model that finds solution to inappropriate nature of linear lifecycle models. Predict the process model and write any two key features of the model.

8. 'Ideo' is a popular interactive product development company, developing an interactive product, 'Automatic Coffee Maker' for ABC company. Some of the vital requirements of the product have gone wrong during 'Identifying the needs and establishing requirements' activity. State the serious implications faced by 'Ideo' and 'ABC', when the requirements are gone wrong.

9. Explain the benefits of protype in brief.

10. Varun is going to conduct an ethnographic study for developing a computer-system based interactive product. Illustrate, how Varun embroils himself as an observer, in writing the culture of the customers?

PART - B

Answer any FOUR questions **4 x 15 = 60 Marks**

11. Describe the evolution of 'Computer', an interactive product, in detail.

12. Write a detailed note on 'Interface Metaphors' with suitable examples. Criticize the opposition to use interface metaphors. Identify any 5 Interface Metaphors used in MS-Word software.

13. Explain the conceptual frameworks for cognition in detail with appropriate examples. Neatly sketch the GOMS framework for printing files in Acrobat Reader.

14. How do you design collaborative technologies that support conversation? Illustrate with examples, new functionalities, benefits and problems.

15. You are developing a smartwatch, a wearable computing device that closely resembles a wristwatch. In addition to telling time, the smartwatch is Bluetooth capable. The watch becomes a wireless Bluetooth adaptor capable of extending the capabilities of the wearer's smartphone to the watch. The wearer can use the watch's interface to initiate and answer phone calls from their mobile phone, read email and text messages, get weather reports, listen to music, dictate email and text messages, and ask a digital assistant a question.
The other features of the smartwatch include,
    - health informatics, such as heart rate, blood oxygen level, blood pressure and temperature monitoring
    - Contactless payment and digital wallet applications
    - Emergency calls for assistance if the watch detects the wearer has fallen
    - social media and other notifications from synchronized smartphone applications
    - Games, music, photos and other entertainment options
    - Location features, such as maps, a compass and an altimeter
    - GPS tracking

    Create any three business tasks using three different flavors of task descriptions.

16. Summarize the evaluation paradigms and techniques in detail.

PART – C

Answer the following **1 x 20 = 20 Marks**

17. Gather the requirements of a mailing software and perform the following:
    a) Create paper-based prototype of the software. (5)
    b) Highlight the common design principles in the prototype. (5)
    c) Analyze the cognitive processes that are necessitate to carry-out the tasks of the mailing software. (5)
    d) Evaluate the prototype using DECIDE framework. (5)

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SASTRA DEEMED UNIVERSITY

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End Semester Examinations

Nov 2024

Course Code: **CSE332**

Course: **USABILITY DESIGN OF SOFTWARE APPLICATIONS**

QP No. :**U026-7**

Duration: **3** hours

Max. Marks:**100**

PART – A

Answer all the questions **10 x 2 = 20 Marks**

1. Suggest strategies to improve the usability of the websites that Ravi creates for his start-up. What techniques can be implemented to enhance user experience and engagement?

2. Evaluate the steps Malathy can take to ensure the safety of the interactive product she develops, based on the requirements specified by 'XYZ' company for a mobile application.

3. How the interface metaphors assist novice users in understanding and learning interactive products? Identify potential limitations of this approach, if applicable.

4. Outline the key benefits of using a 'training wheels' approach for learning an interactive product.

5. Compare Babble, an asynchronous-based product, with ActivBoard, a synchronous-based product, highlighting key differences.

6. Mention the key design considerations for developing collaborative technologies to enhance awareness among team members.

7. List the differences between functional and nonfunctional requirements in the software application development process.

8. Briefly mention the key principles of the user-centered interactive design approach.

9. In what way the high-fidelity prototypes differ from the low-fidelity prototypes in the context of an e-banking application?

10. List the four evaluation paradigms that can be employed to evaluate the performance of an interactive product.

PART – B

Answer any Four questions **4 x 15 = 60 Marks**

11. Describe the usability and user experience goals to be considered for the interaction design of a mobile banking application, and include an appropriate layout design to illustrate key points.

12. Discuss the conceptual frameworks that inform the design of socially-oriented interactive products. Include a case study to illustrate their influence on development and social mechanisms.

13. Explain in detail the lifecycle models of interaction design, software engineering, and human-computer interaction, including relevant diagrams to support.

14. Investigate the hierarchical task analysis (HTA) for purchasing a product in an e-commerce application.

15. Illustrate the significance of prototyping and construction, including conceptual design, physical design, and tool support, in the design process with suitable examples.

16. Analyze the DECIDE framework and its application in evaluating interactive systems or products. Examine how the framework guarantees a thorough and systematic validation process.

PART – C

Answer the following **1 x 20 = 20 Marks**

17. Illustrate the design and usability principles in detail for flight booking applications, focusing on the key elements of user experience. Provide examples of effective design choices that improve the overall user experience in flight booking scenarios.

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SASTRA DEEMED UNIVERSITY

(A University under section 3 of the UGC Act, 1956)

End Semester Examinations

Dec 2023

Course Code: **INT318**

Course: **IT WORKSHOP SCILAB / MATLAB**

QP No. :**UD257-7**

Duration: **3** hours

Max. Marks:**100**

PART - A

Answer all the questions **10 x 2 = 20 Marks**

1. What are the major windows available in MATLAB Desktop?
2. How to terminate a loop prematurely?
3. List out the commands to manage command window.
4. Create a matrix where each element represents (row-number % column-number).
5. What is continue statement in while loop?
6. Write a matlab function to accept weight in pounds. Convert this to kilograms and return the result to the output variable. The conversion factor is 1kg=2.2lb.
7. Create a variable row that is a random integer in the inclusive range from 1 to 5. Create a variable col that is a random integer in the inclusive range from 1 to 5.
8. Differentiate between script and functions.

9. Write an M-file that will first define 10 elements in array. Calculate the product of the elements in an array using for loop.

10. Write a matlab command to solve the liner equations.

PART - B

Answer any Four questions **4 x 15 = 60 Marks**

11. a) Write a user defined function to sort the vector v = [23 45 12 9 5 0 19 17]. (7)

b) Create a MATLAB script file to manipulate the following matrix:
A = [5 2 4; 1 7 −3 ;6 −10 0] (8)
i) Find the minimum of each row store the result in matrix B.
ii)Sort each column and store the result in matrix C.
iii)Sum all of the elements of matrix using user defined functions.

12. Design a GUI to extract the 15 statistical measures from the vector and matrix.

13. a) Write a script to generate the following output. (8)
Enter a number greater than 1 and less than 10: 9, a = 9. The random number is: 14. The random number is not divisible by the entered number.

b) Write a program to read 10 elements in an array. Ask search element from the user and then find the square root of a search element. Return the index of the square root of a search element. If element is not present in an array, display message as element is not present in an array. (7)

14. a) Discuss the debugging process in matlab. (7)

b) Write a script file to convert the array mark= [90 50 49 78 60 38] into grade = [P P F P P F] using switch case. (8)

15. Differentiate between recursion and nested function for the following

a) Factorial of a number.
b) Sum of prime numbers between a and b.

16. Design a GUI to perform the following process in fruit image classification a) browse image b) remove noise and contract enhancement c) colour image processing d) predict fruit label.

PART - C

Answer the following **1 x 20 = 20 Marks**

17. a) Outline the creation of 2-D matrix using user defined and built-in matlab commands. (5)
b) Matrix manipulations. (5)
c) Illustrate the various types of 2-D plots. (10)

```
fileID=fopen("file.txt", r);
while ~feof(fileID)  *****
  line= fgetl(fileID)
  disp(line)
 end
 fclose(fileID);
end
```

To get an array

```
fileID= fopen('r - -
comp=fscanf(fileID,'%d')
disp(comp);
```

to ge

linear eqn:

```
[A,B]= equationsToMatrix([eqn1, eqn2, eqn3], [x y z])
x= linsolve(A, B);
```

(n)

```
sol= solve([ea - - )
x=sol.x;
y=sol.y;
z=sol.z;
```

y. sorted array.

```
[m n]=size(comp);
for i=1:m
    for j=1:n
        if comp(i)>comp(j)
~~temp comp(i)=com~~
            temp= comp(i);
            comp(i)= comp(j);
            comp(j)= temp; 3
    end
end
```

SASTRA DEEMED UNIVERSITY

(A University under section 3 of the UGC Act, 1956)

End Semester Examinations

Dec 2023

Course Code: **MGT211**

Course: **FUNDAMENTALS OF HUMAN RESOURCE MANAGEMENT**

QP No. **:UD199-7**

Duration: **3** hours

Max. Marks**:100**

PART – A

Answer all the questions **10 x 2 = 20 Marks**

1. Associate the evolution of HR management practices with the changing role of HR managers in the modern workplace.
2. Examine how HRIS enhances HR processes such as recruitment, performance management, and employee benefits administration.
3. List the Components of Job Design and provide brief descriptions for each element.
4. Relate the advantages of Internet Recruiting in the contemporary scenario to real-life hiring challenges faced by organizations.
5. Judge the effectiveness of Broad Banding in modern organizations.
6. Highlight the significance of the Job Evaluation Process in organizations.
7. Describe the key attributes of Service Leadership and provide real-life examples to illustrate their impact on organizational success.

8. Analyze the impact of flexible work practices on employee productivity, job satisfaction, and work-life balance. Provide specific examples of organizations that have successfully implemented these practices.

9. Compare and contrast the principles of Wage and Salary Administration in the public and private sectors.

10. Indicate the key steps required to improve the effectiveness of Career Planning.

PART – B

Answer any Four questions **4 x 15 = 60 Marks**

11. Appraise the strategies implemented by any company of your choice in managing diversity in the workplace. Provide a comprehensive analysis of the challenges faced and strategies for managing diversity.

12. Evaluating the effectiveness of Internal sources, External sources, and Internet Recruitment Strategies in a Modern Corporate Setting, compare their pros and cons, and recommend the most suitable approach for a dynamic workplace environment.

13. Examine the components of Executive Compensation and provide a constructive critique of the existing Executive Compensation Systems.

14. Defend the strategies implemented by leading Service Sector companies to address HR issues and challenges such as Quality of Life, Attrition, Retention, and Flexible Working Practices. Provide examples and justify the effectiveness of these approaches.

15. Categorize the various On-the-Job and Off-the-Job Training Methods and highlight the merits and demerits of each method.

16. Summarize the key tools utilized in Performance Appraisal: their Advantages, Disadvantages, and Applicability.

PART – C

Answer the following **1 x 20 = 20 Marks**

17. XYZ Corporation, a leading technology firm, faced intricate talent management challenges in the wake of digital transformation. With a surge in demand for specialized skills like data analytics and artificial intelligence, the company struggled to attract and retain top-tier talent. High employee turnover, especially among young professionals seeking diverse experiences, impacted project continuity and team cohesion. Additionally, the rapid pace of technological advancements necessitated continuous upskilling, posing a dilemma for HR managers in balancing existing workforce expertise with emerging skill requirements.

a) Explore innovative talent retention strategies to enhance employee loyalty and reduce turnover rates.

b) Discuss the role of personalized learning paths, digital training platforms, and collaborations with educational institutions in fostering a culture of ongoing skill development among employees.

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SASTRA DEEMED UNIVERSITY

(A University under section 3 of the UGC Act, 1956)

End Semester Examinations

Nov 2024

Course Code: MGT211

Course: **FUNDAMENTALS OF HUMAN RESOURCE MANAGEMENT**

QP No. :**U263-7**

Duration: 3 hours

Max. Marks:**100**

PART – A

Answer all the questions **10 x 2 = 20 Marks**

1. What is HRIS?
2. Define SHRM.
3. Recall the term Job specification.
4. Outline the meaning for Succession planning.
5. Infer the term Talent Management.
6. Spell out the meaning for Employee Empowerment.
7. Find out the various Attrition methods adopted by an organization.
8. Summarize the term Flexible working practices.
9. Tell how Human Resource Audit is helpful for an organization.
10. List out the Importance of Performance Management.

PART - B

Answer any Four questions **4 x 15 = 60 Marks**

11. Elaborately discuss the Changing role of HR managers.

12. Analyze the various steps involved in Selection process.

13. Evaluate the various methods of wage payment.

14. Discuss the Issues and challenges of HR in service sector.

15. Explain the various sources of Recruitment.

16. Examine the various methods involved in Training.

PART - C

Answer the following **1 x 20 = 20 Marks**

17. Hotel Harmony, a 5 star hotel with 500 employees, faces talent management challenges like high turnover rate among front line staff, limited internal promotions and skill gaps in customer service and problem solving.

    a) How would you develop a strong internal talent within an organization?

    b) What training programs would you introduce to address skill gaps?

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SASTRA DEEMED UNIVERSITY

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End Semester Examinations

Dec 2023

Course Code: **MGT212**

Course: **INTRODUCTION TO FINANCIAL MANAGEMENT**

QP No. **:UD246-7**

Duration: **3** hours

Max. Marks:**100**

PART- A

Answer all the questions **10 x 2 = 20 Marks**

1. Define the term 'Financial Management'.
2. What are the sources of Short-term finance?
3. Calculate the rate of interest if the period of doubling of an investment is (a) 4 years (b) 6 years.
4. Mr. A Considering the purchase of a 7% preference shares of Rs.1000 redeemable after 5 years at par. What should he willing to pay now to purchase the share assuming that the required rate of return is 8%?
5. A Company is expected to pay a dividend of Rs. 6 per share next year. The dividends are expected to grow perpetually at the rate of 9 percent. What is the value of its share if the required rate of return is 15%?
6. What is Com leverage? How it is measured?
7. Write a note on Convertible Debentures.

8. Allen Ltd., pays a dividend of Rs. 4 per share. Its shares are quoted at Rs. 40 presently and investors expect a growth rate of 10% per annum. Calculate the cost of equity capital.

9. Name the various kinds of working capital.

10. A project has an initial investment of Rs. 2,00,000. It will produce cash flows after tax of Rs. 50,000 per annum for six years. Compute the payback period for the project.

PART -B

Answer any four questions **4 x 15 = 60 Marks**

11. (a) Liquidity and Profitability are competing goals for the financial Manager-Comment. (7)
    (b) Define financial management. Explain the objectives of financial management. (8)

12. Mr. Y submits you the details of the dividend and value of shares in PQR Co., Ltd., for a period starting from 2010 below.

Year	2010	2011	2012	2013	2014
Price	135	175	210	180	190
Dividend	15	18	20	32	20
Year	2015	2016	2017	2018	2019
Price	200	215	220	200	220
Dividend	14	14	8	16	20

Compute Total earnings

13. (a) An investment of Rs. 10,000 (having scrap value of Rs.5000) 2yields the following returns:

Year	1	2	3	4	5
CFAT	4000	4000	3000	3000	2500

The cost of capital is 10% is the investment desirable? Discuss it according to NPV method assuming the P.V factors for 1st,2nd,3rd, 4th and 5th year-0.909,0.826,0.751,0.683, and 0.620 respectively. (9)
    (b) Project K Requires an investment of Rs. 20 lakh and yields profit after tax and depreciation as follows:

Year	1	2	3	4	5
CFAT& Dep	100000	150000	250000	260000	160000

At the end of the 5th year, the plant can be sold for Rs. 1,60,000. You are required to calculate ARR. (6)

14. (a) Pierre Blodin Ltd., has sales of Rs. 12 lakhs. The variable cost is 50% of sales, while the fixed cost amounts to Rs. 3,60,000. The amount of interest on long-term debt is Rs. 1,20,000. You are required to calculate the combined leverage and illustrate its impact if sales increase by 10%. (5)

(b) From the following information related to Gordon Ltd., calculate (I) the firm's cash cycle (II) cash turnover assuming 360 days in a year (III) the minimum cash balance to be maintained to meet payments when they become due and (IV) savings by reducing the average age of inventory to 4 days.

(i) Average age of account payable: 45 days
(ii) Average age of accounts receivable: 75 days
(iii)Average age of inventory: 90 days
(iv)Total annual operating outlay: Rs. 15,00,000
(v) Rate of Return on investment: 12 %. (10)

15. Write short notes on the Following.

(a) Effective rate of Interest (ERI)
(b) Need and significance of capital budgeting
(c) Objectives of Cash Management (5+5+5)

16. (a) Explain the techniques of inventory management with examples. (7)

(b) From the following information relating to Perara Ltd., calculate (i) Operating Cycle, (ii) No., of operating cycles in a year assuming a 360 day year, and (iii) Average Working capital required, if annual cash operating expenses are Rs. 150 lakhs.

Stock Holding : Raw Materials : 2 months
WIP : 15 days
Finished goods : 1 month
Average Debt Collection Period : 2 months
Average payment Period : 45 days. (8)

PART -C

Answer the following **1 x 20 = 20 Marks**

Case Study

17. (a) A firm finance all its investments by 40 per cent debt and 60 per cent equity. The estimated required rate of return on equity is 20 per cent after-taxes and that of the debt is 8 per cent after-taxes. The firm is considering an investment proposal costing Rs. 40,000 with an expected return that will last forever. What amount (in rupees) must the proposal yield per year so that the market price of the share does not change? Show calculations to prove your point. (5)

(b) Divya Paints Ltd is currently following a centralized collection system. Most of its customers are located in the cities of Northern India. The remittances mailed by customers to the central location take four days to reach. Before depositing the remittances in the bank, the firm loses two days in processing them. The daily average collection of the firm is Rs. 100,000. The company is thinking of establishing a lock-box system. It is expected that such a system will reduce mailing time by one day and processing time by one day.

(i) Find out the reduction in cash balances expected to result from the adoption of the lock-box system.

(ii) Determine the opportunity cost of the present centralized collection system if the interest rate is assumed to be 18 per cent.

(iii) Should the lock-box system be established if its annual cost is Rs. 24,500? (10)

(c) A firm decides to liberalise credit standards to sell a group of customers with 10% risk of non-payment. The firm estimates that this course of action would result in an additional sales of Rs. 4,00,000, the variable cost of the additional units is estimated to be about 65% of the selling price, it is further anticipated that as a result of change in credit policy, collection cost will increase by 5% of additional sales. Should the firm liberalize credit standards? (5)

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SASTRA DEEMED UNIVERSITY

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End Semester Examinations

Nov 2024

Course Code: **MGT212**

Course: **INTRODUCTION TO FINANCIAL MANAGEMENT**

QP No. :**U346-7**

Duration: **3** hours

Max. Marks:**100**

PART - A

Answer all the questions **10 x 2 = 20 Marks**

1. Define financial management.
2. Name four finance functions or decisions.
3. What is wealth maximization?
4. Rahul makes an initial deposit of ₹ 2,00,000 in City union bank Ltd. Interest is compounded at 10% p.a. for 6 years. Compute the amount of maturity.
5. Differentiate systematic and unsystematic risk.
6. Write the meaning of diversification.
7. Mention the sources of cost of capital.
8. Five years ago, Chandi Limited issued 12% irredeemable debentures at ₹ 103, at ₹ 3 premium to their par value of ₹ 100. The current market price of these debentures is ₹ 95. If the company pays corporate tax at a rate of 35 per cent calculate its current cost of debenture capital?

9. Explain the concept of working capital.

10. State the meaning of factoring.

PART - B

Answer any Four questions **4 x 15= 60 Marks**

11. a) "Liquidity and profitability are competing goals for the finance managers"- Comment. (5)

b) The expected cash inflows are as follows: (10)

Year	1	2	3	4	5
Cash inflows	3,000	4,500	6,000	8,000	10,000
PVF at 16%	0.862	0.743	0.641	0.552	0.476

Discount rate is 16%. Find out the present value of cash inflows.

12. Calculate the maturity amount if ₹ 2,00,000 is invested for 2 years at 12% compounded – (a) Annually (b) Semi-annually (c) Quarterly and (d) Monthly.

13. a) Define and compare going concern value and liquidation value. (7)

b) Define yield-to-maturity, yield-to-call and current yield. How are they calculated? (8)

14. Explain Capital asset pricing model.

15. A project costs ₹ 20 lakh and yields annually a profit of ₹ 3, 00,000 after depreciation at 12½ per cent but before tax at 50 per cent. Calculate payback period and suggest whether it should be accepted or rejected based on 6 year standard payback period.

16. The working result of two machines are given below

	Machine X	Machine Y
Cost	45,000	45,000
Sales per year	1,00,000	80,000
Total Cost Per Year (excluding depreciation)	36,000	30,000
Expected Life	2 years	3 years

Which of the two should be preferred?

PART - C

Answer the following **1 x 20= 20 Marks**

17. a) A firm has sales of 1,00,000 units at ₹10 per unit. Variable cost of the produced products is 60 per cent of the total sales revenue. Fixed cost is ₹ 2,00,000. The firm has used a debt of₹ 5,00,000 at 20 per cent interest. Calculate the operating leverage and financial leverage and combined leverage. (10)

b) A choice is to be made between the two competing proposals which require an equal investment of ₹ 50,000 and are expected to generate net cash flows as under:

Year	1	2	3	4	5	6
Project A	25,000	15,000	10,000	NIL	12,000	6,000
Project B	10,000	12,000	18,000	25,000	8,000	4,000
P.V. Factor At 10%	0.909	0.826	0.751	0.683	0.621	0.564

Cost of capital of the company is 10%. Which proposal should be selected using NPV method? Suggest the best project. (10)

SASTRA DEEMED UNIVERSITY

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End Semester Examinations

Nov 2024

Course Code: **INT317**

Course: **DATA MINING AND ANALYTICS**

QP No. :**U085-7**

Duration: **3** hours

Max. Marks:**100**

PART – A

Answer any FOUR questions **4 x 20 = 80 Marks**

1. Consider the following data (in increasing order) for the attribute age: 13, 15, 16, 16, 19, 20, 20, 21, 22, 22, 25, 25, 25, 25, 30, 33, 33, 35, 35, 35, 35, 36, 40, 45, 46, 52, 70. Using the data for age, answer the following:
   (a) Use min-max normalization to transform the value 35 for age onto the range [0.0,1.0].
   (b) Use z-Score normalization to transform the value 35 for age, where the standard deviation of age is 12.94 years.
   (c) Use normalization by decimal scaling to transform the value 35 for age.
   (d) Comment on which normalization method you would prefer to use for the given data, giving reasons as to why.
   (e) Apply binning by means method to smooth these data, Using a bin depth of 3.
   Illustrate your steps. Comment on the effect of this technique for the given data.

2. A database has five transactions. Let min sup = 60% and min conf = 80%.

Transaction id	Items
T100	{N, P, O, L, F, Z}
T200	{E, P, O, L, F, Z}

T300	{N, B, L, F}
T400	{N, V, D, L, F, Z}
T500	{D, P, L, J, F}

(a) Find all frequent item sets using Apriori algorithm.
(b) List all the strong association rules.

3. a) Given the following table of student's grade: (10)
Midterm: 72 50 81 74 94 86 59 83 65 33 88 81
Final: 84 63 77 78 90 75 49 79 77 52 74 90
Use the method of least squares to find an equation for the prediction of a student's final exam grade based on the student's midterm grade in the course. Also predict the final exam grade of a student who received an 86 in the midterm exam.
b) Compare Linear and Logistic regression. Derive the equation for sigmoid function in logistic regression. (10)

4. Explain about Bayes Theorem and Find the naïve bayes probability computation on the given data for the test instance X= {Weather:" rainy", Road condition:" Good", Traffic:" Normal", Engine Issue: No}.

Weather	Road Condition	Traffic	Engine Issue	Accident
Rainy	Bad	High	No	Yes
Cloudy	Average	Normal	Yes	Yes
Clear	Bad	Light	No	No
Clear	Good	Light	Yes	Yes
Cloudy	Good	Normal	No	No
Rainy	Average	Light	No	No
Rainy	Good	Normal	No	No
Cloudy	Bad	High	No	Yes
Clear	Good	High	Yes	No
Clear	Bad	High	Yes	Yes

5. a) We have two features of the following data points:
X1: (2.5, 1.5, 1.7, 1.9, 2.9, 2.3, 2.8,1.6)
X2: (545, 438, 489, 429, 528, 503, 563, 445)

the corresponding target values: (1, 0, 0, 0, 1, 1, 1, 0), using the K-Nearest Neighbors algorithm with k=5, determine the target value for the new data point A= (1.8,415) by calculating the Euclidean distances between A and each of the given data points.

b) Dr. Bob is developing a model to predict whether patients have cancer based on their medical data. After training the model, the results for a group of 3895 patients are summarized. out of the 3895 patients, 368 were diagnosed with cancer, and 3527 were healthy. The model correctly identified 266 patients with cancer and 3419 healthy patients. However, 102 patients with cancer were misclassified as healthy, and 108 healthy patients were incorrectly predicted to have cancer. Plot the confusion matrix and infer the performance measures of the model.

6. a) Find the covariance and correlation between the Stock Prices of Company A and Company B over a 6-month period:

Month	Company A stock price	Company B stock Price
Jan	320	340
Feb	350	360
Mar	370	380
Apr	390	400
May	410	420
Jun	430	440

b) Briefly describe the role of decision trees in risk analysis and their importance in prescriptive analytics.