Top Skills

C++

Java

Flutter

Languages

Sanskrit (Elementary)

Marathi (Native or Bilingual)

Hindi (Native or Bilingual)

English (Full Professional)

Certifications

Object Oriented Programming (C++) & Personality Development

Certificate of Participation in Level 1: E-Commerce

Introduction to Statistics

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Experience

PCSB
Student Member
September 2021 - Present (1 year 1 month)

Education

Pune Institute of Computer Technology
Bachelor of Engineering - BE, Information Technology · (2020 - 2024)

DAV Public School, Pune
 · (2006 - 2019)

Question bank HCI(Unit I, II,III)

1) Describe briefly four different interactions styles used to accommodate the dialog between user and computer. Specify advantages and disadvantages of each interaction style.

2) Hierarchical Task Analysis (HTA) is used to describe the interactions between a user and a software system. Draw and explain HTA to online bus reservation system.

3) Explain following WIMP interface elements with respect to any text editor.
   – Icons
   – Menus
   – Toolbars
   – Dialog boxes.

4) HCI affects use of Fully Automatic Washing Machine(or Hospital management system or Library Management system) with respect to:
   i) the aim of the program (what is used for)
   ii) describe its interface (picture of the screen)
   iii) describe its interaction (how it is used).
   b) Explain how surveys help in better design.

5) Draw and describe HTA to cook food (e.g. rice) using micro oven.

6) Write short note on:
   i) Human Input output channels
   ii) Human memory.

7) Consider two different ATM machines. One giving away the cash and then ejecting the bank card and the other ejecting the bank card first and then dispensing the cash. Which is a better interface from interaction design point of view? Justify.

8) Hierarchical Task Analysis (HTA) is used to describe the interactions between a user and a software system. Draw and explain HTA to online bus reservation system.

9) Express your opinion - "A design should be User-Centric".

10) With the help of Norman's Model of interaction explain the process of execution evaluation cycle. What do mean by 'gulf of execution' and 'gulf of evaluation' with respect to this model?

11) Justify the following statement extensive knowledge about the human eye or visual system can be made applicable in the practical user interface design.

12) List and explain the various disciplines of Human Computer Interaction.

13) Explain Principles of Human Computer Interaction?

14) Explain Design of everyday things with example?

15) Why Empathy is important for human centred design?

16) List human Input-Output channels and discuss briefly about it.

17) Write a long-term memory model script for case given below an owner went to veterinary hospital along with dog.

18) What is reasoning? Explain different types of reasoning with examples?

19) Explain the role of senses which plays an important role in HCI?

20) Enlist different interaction styles and describe different interaction styles used to accommodate the dialog between user and computer.

21) Explain Donald Norman's seven stages of Interaction.

22) Write short note on: STM & LTM

23) Explain in detail the need to study "Human Computer Interaction" for producing good interactive software?

24) Explain why – "A design should be User Centric".

25) What is reasoning? Discuss with example Inductive versus Deductive Reasoning.

26) Compare STM and LTM of human with respect to capacity, access time and forgetting.

27) What can system designer do to minimize the memory load of the user?

28) Explain the following terms

i) Human Psychology ii) Design Principles

29) What is Ergonomics? List and explain the various disciplines of Ergonomics.

30) Describe briefly five different interaction styles used to accommodate the dialog between user and computer.

31) What are differences between menu bar and tool bar? Many times, user face the problems in understanding/learning tool bar icons? How resolve issue?

32) Explain the HCI design process with respect to scenario and prototyping techniques?

33) What is prototype? Explain different types of rapid prototyping technique?

34) What parameters are considered at the time of developing a system menu at designer side?

35) Explain in detail Schneiderman's eight golden rules of interface design?

36) Create a GOMS description of the task of photocopying a paper from a journal. Discuss the issue of closure in terms of your GOMS description?

37) A semantic network is used in modelling the organization of knowledge in memory. Produce a semantic network to train memory for gaining knowledge about all living things.

38) What is the Norman's seven principles for transforming difficult tasks into simple ones?

39) Explain significance of sensory memory in interface design?

40) Explain disciplines contributing to Human computer Interaction.

41) List Schneiderman's Eight Golden Rules of Interface Design and explain any five rules in details.

42) What is WIMP? Explain elements of WIMP Interfaces?

43) Explain the concept of Ergonomics with example.
44) Explain Donald Norman's seven stage model.

Sr. No.	LP-1 Problem Statement
1.	Classification: Decision Tree

Dataset: madfhantr.csv

Dream Housing Finance company deals in all kinds of home loans. They have presence across all urban, semi urban and rural areas. Customer first applies for home loan and after that company validates the customer eligibility for loan.

Company wants to automate the loan eligibility process (real time) based on customer detail provided while filling online application form. These details are Gender, Marital Status, Education, Number of Dependents, Income, Loan Amount, Credit History and others. To automate this process, they have provided a dataset to identify the customers segments that are eligible for loan amount so that they can specifically target these customers. |
| | |
| 2. | Classification: Naïve Bayes

Dataset: NaiveBayes.csv

Use probabilistic approach to implement Classifier model. Evaluate the performance of the model. |
| | |
| 3. | Clustering: K-Means
Dataset: Cities_r2.csv
Apply Data pre-processing (Label Encoding , Data Transformation….) techniques if necessary.
Apply at K-Means clustering algorithms (based on total_graduates) to find the group of customers. |
| | |
| 4. | Clustering: Hierarchical
Dataset: Cities_r2.csv
Apply Data pre-processing (Label Encoding , Data Transformation….) techniques if necessary.
Apply at K-Means clustering algorithms (based on effective_literacy_rate_total column) to find the group of customers. |
| | |
| 5. | Clustering: K-Means
Dataset: Cities_r2.csv
Apply Data pre-processing (Label Encoding , Data Transformation….) techniques if necessary.
Apply at K-Means clustering algorithms (based on effective_literacy_rate_total column
) to find the group of customers. |
| | |

6.	Clustering: Hierarchical
	Dataset : hitters.csv
	Apply Data pre-processing (Label Encoding , Data Transformation....) techniques if necessary.
	Apply at K-Means clustering algorithms (based on CRuns column) to find the group of customers.
7.	Clustering: K-Means
	Dataset : Social_Network_Ads.csv
	Apply Data pre-processing (Label Encoding , Data Transformation....) techniques if necessary.
	Apply at K-Means clustering algorithms (based on EstimatedSalary column) to find the group of customers.
8.	Clustering: Hierarchical
	Dataset : 50_Startups.csv
	Apply Data pre-processing (Label Encoding , Data Transformation....) techniques if necessary.
	Apply at K-Means clustering algorithms (based on PROFIT column) to find the group of customers.
9.	Regression: Simple Linear
	Dataset : diabetes.csv
	Apply Data pre-processing (Label Encoding , Data Transformation....) techniques if necessary.
	Use any one feature of the dataset to train and test the regression model. Also calculate coefficients, residual sum of squares and the coefficient of determination
10.	Regression: Simple Linear
	Dataset: 1.01. Simple linear regression
	Apply Data pre-processing (Label Encoding , Data Transformation....) techniques if necessary.
	Explore the relationship between students SAT score and GPA using linear regression model. Also display the regression results and plot the regression line.
11.	Clustering: K-Means
	We have given a collection of 8 points. P1=[0.1,0.6] P2=[0.15,0.71] P3=[0.08,0.9] P4=[0.16, 0.85] P5=[0.2,0.3] P6=[0.25,0.5] P7=[0.24,0.1] P8=[0.3,0.2]. Perform the k-mean clustering with initial centroids as m1=P1 =Cluster#1=C1 and m2=P8=cluster#2=C2. Answer the following 1] Which cluster does P6 belongs to? 2] What is the population of a cluster around m2? 3] What is the updated value of m1 and m2?
12.	Regression: Simple Linear
	Dataset: advertising.csv
	Apply Data pre-processing (Label Encoding , Data Transformation....) techniques if necessary.
	Explore whether TV advertising spending can predict the number of sales for the product. Also display the regression results and plot the regression line.

13.	Regression: Simple Linear
	Dataset: advertising.csv
	Apply Data pre-processing (Label Encoding , Data Transformation….) techniques if necessary.
	Explore whether Radio advertising spending can predict the number of sales for the product. Also display the regression results and plot the regression line.
14.	Regression: Simple Linear
	Dataset: advertising.csv
	Apply Data pre-processing (Label Encoding , Data Transformation….) techniques if necessary.
	Explore whether Newspaper advertising spending can predict the number of sales for the product. Also display the regression results and plot the regression line.
15.	Market Basket Analysis: Apriori Algorithm
	Dataset: Order1.csv
	The dataset has 38765 rows of the purchase orders of people from the grocery stores. These orders can be analysed, and association rules can be generated using Market Basket Analysis by algorithms like Apriori Algorithm.
	Follow following Steps:
	a. Data Pre-processing
	b. Generate the list of transactions from the dataset
	c. Train Apriori on the dataset
	d. Visualize the list of datasets
16.	Market Basket Analysis: Apriori Algorithm
	Dataset: Order2.csv
	This dataset comprises the list of transactions of a retail company over the period of one week. It contains a total of 7501 transaction records where each record consists of the list of items sold in one transaction. Using this record of transactions and items in each transaction, find the association rules between items.
	There is no header in the dataset and the first row contains the first transaction, so mentioned header = None here while loading dataset.
	Follow following steps:
	a. Data Pre-processing
	b. Generate the list of transactions from the dataset
	c. Train Apriori algorithm on the dataset
	d. Visualize the list of rules
17.	Market Basket Analysis: Apriori Algorithm
	Dataset: Order3.csv
	The dataset has 20507 rows and 5 columns of the purchase orders of people from the bakery. These orders can be analysed, and association rules can be generated using Market Basket Analysis by algorithms like Apriori Algorithm.
	Follow following steps:
	a. Data Pre-processing
	b. Generate the list of transactions from the dataset
	c. Train Apriori algorithm on the dataset
	d. Visualize the list of rules

18.	Classification: Naïve Bayes
	Dataset: pima-indians-diabetes.csv
	Use probabilistic approach to implement Classifier model. Evaluate the performance of the model.
19.	Classification: Naïve Bayes
	Dataset: Social_Network_Ads.csv
	Use probabilistic approach to implement Classifier model. Evaluate the performance of the model.
20.	Classification: Decision Tree Dataset: data.csv Create & evaluate the decision tree. Test the decision tree for the following example. "Should I go see a show starring a 40-year-old American comedian, with 10 years of experience, and a comedy ranking of 7?"
21.	Classification: Decision Tree Dataset: pima-indians-diabetes.csv Create & evaluate the decision tree. Test the decision tree for any random sample.

Document Information

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```c
#include<stdio.h>

#include<sys/types.h>

#include<string.h>

#include<pthread.h>

#include<stdlib.h>

#include<unistd.h>

#include<ctype.h>


int partition (int a[], int start, int end)
{
    int pivot = a[end]; // pivot element
    int i = (start - 1);

    for (int j = start; j <= end - 1; j++)
    {
        // If current element is smaller than the pivot
        if (a[j] < pivot)
        {
            i++; // increment index of smaller element
            int t = a[i];
            a[i] = a[j];
            a[j] = t;
        }
    }
    int t = a[i+1];
    a[i+1] = a[end];
    a[end] = t;
    return (i + 1);
}
```

```c
/* function to implement quick sort */

void quick(int a[], int start, int end) /* a[] = array to be sorted, start = Starting index, end = Ending
index */

{
    if (start < end)

    {
        int p = partition(a, start, end); //p is the partitioning index

        quick(a, start, p - 1);

        quick(a, p + 1, end);

    }

}


void merge(int arr[], int l, int m, int r)

{
    int i, j, k;

    int n1 = m - l + 1;

    int n2 = r - m;


    /* create temp arrays */

    int L[n1], R[n2];


    /* Copy data to temp arrays L[] and R[] */

    for (i = 0; i < n1; i++)

        L[i] = arr[l + i];

    for (j = 0; j < n2; j++)

        R[j] = arr[m + 1 + j];


    /* Merge the temp arrays back into arr[l..r]*/

    i = 0; // Initial index of first subarray

    j = 0; // Initial index of second subarray
```

```
    k = l; // Initial index of merged subarray

    while (i < n1 && j < n2) {

        if (L[i] <= R[j]) {

            arr[k] = L[i];

            i++;

        }

        else {

            arr[k] = R[j];

            j++;

        }

        k++;

    }


    /* Copy the remaining elements of L[], if there

    are any */

    while (i < n1) {

        arr[k] = L[i];

        i++;

        k++;

    }


    /* Copy the remaining elements of R[], if there

    are any */

    while (j < n2) {

        arr[k] = R[j];

        j++;

        k++;

    }

}


/* l is for left index and r is right index of the
```

```c
   sub-array of arr to be sorted */
void mergeSort(int arr[], int l, int r)
{
    if (l < r) {
        // Same as (l+r)/2, but avoids overflow for
        // large l and h
        int m = l + (r - l) / 2;

        // Sort first and second halves
        mergeSort(arr, l, m);
        mergeSort(arr, m + 1, r);

        merge(arr, l, m, r);
    }
}

int main()
{
  pid_t p;
  int n;
  printf("Enter the number of elements");
  scanf("%d",&n);
  int a[n];

  for(int i=0;i<n;i++)
  {
   printf("Enter %d th element  ",(i+1));
   scanf("%d",&a[i]);
  }

  p=fork();
```

```c
  quick(a,0,n-1);
  if(p==0)
   {


     printf("Process is child, ID is %d \n",getpid());
     printf(" Parent's process, ID is %d \n",getppid());
     quick(a,0,n-1);
    printf("After sorting elemets are ");
    for(int i=0;i<n;i++)
    {
     printf("%d ",a[i]);
    }


   }


   else{
     printf("Process is in Parent ,ID is %d \n",getpid());
     mergeSort(a,0,n-1);
     printf("After merge Sort elements are \n ");


    for(int i=0;i<n;i++)
    {
     printf("%d ",a[i]);
    }
    }
   return 0;
}
```

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Blockchain technology is a distributed ledger with data entries that are disseminated among network nodes and contain all the specifics of completed transactions. Consensus procedures certify each transaction done in the system, and the data that is saved cannot be changed. The key technology underlying the widely used cryptocurrency, Bitcoin is called