IT Career Path Assignment

Part 1: C, C++

Part 2: Java

Part 3: Android with Kotlin

Part 4: Front end development

Part 5: Python

Part 6: Ethical Hacking

C, C++

MODULE: 1 (C Language - Introduction)

- Display This Information **using printf**
  a. Your Name
  b. Your Birth date
  c. Your Age
  d. Your Address

MODULE: 2 (C Language - Fundamentals)

- Write a program to make a square and cube of number.

- Write a program to find the simple Interest & Compound Interest.

MODULE: 3 (C Language - Programs)

- Write a Program to check the given year is leap year or not.

- Write a Program to check the given number is prime or not prime.

- Write a program user enter the 5 subjects mark. You have to make a total and find the percentage.

    a) percentage > 75 you have to print "Distinction"
    b) percentage > 60 and percentage <= 75 you have to print "First class"
    c) percentage >50 and percentage <= 60 you have to print "Second class"
    d) percentage > 35 and percentage <= 50 you have to print "Pass class"
    e) Otherwise print "Fail"

- Write a program of to find out the Area of Triangle, Rectangle and Circle using Switch Case .(Must Be Menu Driven)

- Write a program you have to print the Fibonacci series up to user given number

- Write a program to print the number in reverse order.

- Write a program make a summation of given number(E.g. 1523 ans :-11)

- Pyramid Programs

```
A)  *                 B)  1                      C)  * * * *

    **                    2   3                       * * *

    ***                   4   5   6                    * *

    ****                  7   8   9   10                *
```

- Write a program to find out the max number from given 10 elements of array

- Write a program to sort the array of 5 elements.

- Write a Program of find the element of given position from the array

- Write a program to find out the Max number from given Matrix

- Write a program to copy string from one string to another string with user define function.

- Write a program to find out the factorial of given number using function.

- Write a program to print the Fibonacci series using function

- Write a Program of Print a number and check the number is palindrome or not using recursive Function

- Write a program of structure for five employee that provides the following information print and display empno, empname, address and age ☐ Write program to make an addition of two number using pointer ☐ Write a program to concatenate the two string using pointer.

- Write a program to sort the numbers using pointer and functions

MODULE: 4 (C Language – File, Debugging &Error Handling)

- Write a program to read data from file.
- Write a program to read and write data from the file.

MODULE: 5 (C++ Language - Basic)

- Write a C++ Program to print Message "Welcome to Tops Technologies"

MODULE: 6 (C++ Language - Programs)

- Define a class to represent a bank account. Include the following members:

    Data Member: -
    a) Name of the depositor -
    b) Account Number -

    c) Type of Account -
    d) Balance amount in the account -
    e) Member Functions -
    f) To assign values -
    g) To deposited an amount -
    h) To withdraw an amount after checking balance -
    i) To display name and balance

- Define a class to represent lecture details. Include the following members and the program should handle at least details of 5 lecturer.

  Data members:
  - a)   Name of the lecturer
  - b)   Name of the subject
  - c)   Name of course
  - d)   Number of lecturers

  Data functions:
  - a) To assign initial values
  - b) To add a lecture details
  - c) To display name and lecture details

- Write a program of find the simple interest using constructor with dynamic initialization. Make constructor like Interest (int principal, int year, int rate) Interest (int principal, int year, float rate = 2.5)

- Write a program to find the multiplication values and the cubic values using inline function.

- Write a Program of Two 1D Matrix Addition using Operator Overloading

- Write a program of two concatenate the two strings using Operator Overloading

- Assume a class cricketer is declared. Declare a derived class batsman from cricketer .Data member of batsman. Total runs, Average runs and best performance. Member functions input data, calculate average runs, Display data. (Single Inheritance)

- Create a class person having members name and age. Derive a class student having member percentage. Derive another class teacher having member salary. Write necessary member function to initialize, read and write data. Write also Main function (Multiple Inheritance)

- Assume that a bank maintains two kinds of accounts for customer, one called as saving account and other as current accounts provides Simple interest and withdraw facilities but no Cheque book facility.

    a) The current account provides Cheque book facility but no interest.
    b) Current account holders should maintain a minimum balance and if the balance falls below this level a service charges is imposed

- Create a class account that stores customer name, account number and type of account.   From this derive classes curr_acc and sav_acct to make them more specific to their requirements Include necessary member functions in order to achieve the following tasks
    a) Accepts deposit from a customer and update balance.
    b) Display the balance.
    c) Compute and deposit interest.
    d) Permit withdraws and updates the balance.
    e) Check for the minimum balance, impose penalty, necessary and update the balance.

- Write a program to swap the two numbers using friend function
- Write a program to read and write data in to file
- Write a program of to swap the two values using templates

MODULE: 7 (C++ Language – Exception Handling)

- Create an example of use delete and new operator.
- Write a program of to sort the array using templates.

SQL Assignment

TASK -1 : Create Database: Practices

Note: Use Create SQL statement for creating table.

tblProduct:

Column Name	Data Type	Constraint	Description
Prd_ID	Int	Primary Key	Auto Increment
Prd_Name	Varchar(25)		
Recommended_Price	Varchar(25)		
Category	Varchar(25)		

tblCustomer:

Column Name	Data Type	Constraint	Description
CustomerID	Int	Primary Key	Auto Increment
FirstName	Varchar(25)		
LastName	Varchar(25)		
City	Varchar(25)		
State	Varchar(25)		
Zip	Varchar(25)		

tblSales

Column Name	Data Type	Constraint	Description
Sales_ID	Int	Primary Key	Auto Increment
Prd_ID	Int	Foreign Key	
Cust_Id	Int	Foreign Key	
SalesPrice	Varchar(25)		
SalesDate	Date		

Queries:

1) Return the FirstName, LastName , ProductName and Sales Price for all products sold in month of October 2022

2) Return the CustomerID, FirstName, and LastName of those individuals in the Customer table who have made no Sales purchases.

3) Return the FirstName, LastName, SalePrice, Recommended SalePrice, and the difference between the SalePrice and Recommended SalePrice for all Sales. The difference must be returned as a positive number.

4) Add the following Customer and Sale information to the database. (using store procedure)
        FirstName : Mansi
        LastName : Joshi
        City: Mumbai
        State:MH
        Zip:400001
        ProductID:3
        SalePrice:205
        SaleDate:05/12/2022

5) Return the Product Category and the average Sale Price for those customers who have purchased two or more products.

6) Update the Sale Price to the Recommended Sale Price of those Sales occurring between 6/10/2022and6/20/2022.

7) Number of Sales by Product Category where the average Recommended Priceis10 or more dollars greater than the average Sale Price.

8) Largest order taken by each salesperson, date wise.

9) Without using a declared iterative construct, return Sale Date and the running total for all sales, ordered by the Sale Date in Ascending Order.

TASK 2:
Table Name:- Employee

Empid	EmpName	Department	ContactNo	EmailId	EmpHeadId
101	Isha	E-101	1234567890	isha@gmail.com	105
102	Priya	E-104	1234567890	priya@yahoo.com	103
103	Neha	E-101	1234567890	neha@gmail.com	101
104	Rahul	E-102	1234567890	rahul@yahoo.com	105
105	Abhishek	E-101	1234567890	abhishek@gmail.com	102

Table Name:- EmpDept

DeptId	DeptName	Dept_off	DeptHead
E-101	HR	Monday	105
E-102	Development	Tuesday	101
E-103	Hous Keeping	Saturday	103
E-104	Sales	Sunday	104
E-105	Purchage	Tuesday	104

Table :- EmpSalary

EmpId	Salary	IsPermanent
101	2000	Yes
102	10000	Yes
103	5000	No
104	1900	Yes
105	2300	Yes

Table :- Project

ProjectId	Duration
p-1	23
p-2	15
p-3	45

p-4	2
p-5	30

Table: - Country

cid	cname
c-1	India
c-2	USA
c-3	China
c-4	Pakistan
c-5	Russia

Table :- ClientTable

ClientId	ClientName	cid
cl-1	ABC Group	c-1
cl-2	PQR	c-1
cl-3	XYZ	c-2
cl-4	tech altum	c-3
cl-5	mnp	c-5

Table :- EmpProject

EmpId	ProjectId	ClientID	StartYear	EndYear
101	P-1	CL-1	2010	2010
102	P-2	CL-1	2010	2012
103	P-1	CL-1	2013	2015
104	P-4	CL-2	2014	2015
105	P-4	Cl-2	2015	2015

Queries :

1) Select the detail of the employee whose name start with P.

2) How many permanent candidate take salary more than 5000.

3) Select the detail of employee whose emailed is in Gmail.

4) Select the details of the employee who work either for department E-104 or E-102.

5) What is the department name for DeptID E-102?

6) What is total salary that is paid to permanent employees?

7) List name of all employees whose name ends with a.

8) List the number of department of employees in each project.

9) How many project started in year 2010.

10) How many project started and finished in the same year.

11) Select the name of the employee whose name's 3rd character is 'h'.

12) Select the department name of the company which is assigned to the employee whose employee id is grater 103.

13) Select the name of the employee who is working under Abhishek.

14) Select the name of the employee who is department head of HR.

15) Select the name of the employee head who is permanent.

16) Select the name and email of the Dept Head who is not permanent.

17) Select the employee whose department off is Monday

18) Select the Indian client's details.

19) Select the details of all employee working in development department.

Java

MODULE: 1

- Write a Java program to Take three numbers from the user and print the greatest number.
- Write a Java program that takes the user to provide a single character from the alphabet. Print Vowel or Consonant, depending on the user input. If the user input is not a letter (between a & z or A and Z), or is a string of length > 1, print an error message.
- Write a Java program that takes a year from user and print whether that year is a leap year or not. B19. Write a program in Java to display the first 10 natural numbers using while loop.
- Write a program in Java to input 5 numbers from keyboard and find their sum and average using for loop.
- Write a program in Java to display the pattern like right angle triangle with a number.

  1

  12

  123

  1234

  12345

- Write a program in Java to make such a pattern like right angle triangle with number increased by 1 The pattern like:

  1

  2 3

  4 5 6

  7 8 9 10

- Write a Java program that reads a positive integer and count the number of digits the number.
  Input an integer number less than ten billion: 125463 Number of digits in the number: 6
- Write a Java program to count the letters, spaces, numbers and other characters of an input string.
- Write a Java program to print the ASCII value of a given character.
- Write a Java program that accepts an integer (n) and computes the value of n+nn+nnn. Input number: 5
  5 + 55 + 555

- Write a Java program to display the system time.
- Write a Java program to print numbers between 1 to 100 which are divisible by 3, 5 and by both.

MODULE: 2

- W.A.J.P to get the character at the given index within the String. Original String = Tops Technologies! The character at position 0 is T, The character at position 10 is o
- W.A.J.P to concatenate a given string to the end of another string.
- W.A.J.P to compare a given string to the specified character sequence. Comparing topsint.com and topsint.com: true Comparing Topsint.com and topsint.com: false
- W.A.J.P to check whether a given string ends with the contents of another string. "Java Exercises" ends with "se"? False "Java Exercise" ends with "se"? True
- W.A.J.P to find all interleaving of given strings.
  The given strings are: WX YZ

  The interleaving strings are: YWZX WYZX YWXZ WXYZ YZWX WYXZ

- W.A.J.P to find the second most frequent character in a given string. The given string is: successes The second most frequent char in the string is: c

- Create a class named 'PrintNumber' to print various numbers of different data types by creating different methods with the same name 'printn' having a parameter for each data type.
- Create a class to print an integer and a character with two methods having the same name but different sequence of the integer and the character parameters. For example, if the parameters of the first method are of the form (int n, char c), then that of the second method will be of the form (char c, int n).
- Create a class to print the area of a square and a rectangle. The class has two methods with the same name but different number of parameters. The method for printing area of a rectangle has two parameters which are length and breadth respectively while the other method for printing area of square has one parameter which is side of square.
- Create a class with a method that prints "This is a parent class" and its subclass with another method that prints "This is child class". Now, create an object for each of the class and call 1 - method of parent class by object of parent class 2 - method of child class by object of child class 3 - method of parent class by object of child class
- Create a class named 'Member' having the following members:
  Data members
    a) Name
    b) Age
    c) Phone number
    d) Address 5 - Salary
    e) It also has a method named 'printSalary' which prints the salary of the members.
    f) Two classes 'Employee' and 'Manager' inherits the 'Member' class. The 'Employee' and 'Manager' classes have data members 'specialization' and 'department' respectively. Now, assign name, age, phone number, address and salary to an employee and a manager by making an object of both of these classes and print the same.

- Create a class named 'Rectangle' with two data members 'length' and 'breadth' and two methods to print the area and perimeter of the rectangle respectively. Its constructor having parameters for length and breadth is used to initialize

the length and breadth of the rectangle. Let class 'Square' inherit the 'Rectangle' class with its constructor having a parameter for its side (suppose s) calling the constructor of its parent class as 'super (s, s)'. Print the area and perimeter of a rectangle and a square.

- Write a program to print the area and perimeter of a triangle having sides of 3, 4 and 5 units by creating a class named 'Triangle' without any parameter in its constructor.

- Print the sum, difference and product of two complex numbers by creating a class named 'Complex' with separate methods for each operation whose real and imaginary parts are entered by user.

- Create an abstract class 'Parent' with a method 'message'. It has two subclasses each having a method with the same name 'message' that prints "This is first subclass" and "This is second subclass" respectively. Call the methods 'message' by creating an object for each subclass.

- Create an abstract class 'Bank' with an abstract method 'getBalance'. $100, $150 and $200 are deposited in banks A, B and C respectively. 'BankA', 'BankB' and 'BankC' are subclasses of class 'Bank', each having a method named 'getBalance'. Call this method by creating an object of each of the three classes.

- We have to calculate the percentage of marks obtained in three subjects (each out of 100) by student A and in four subjects (each out of 100) by student B. Create an abstract class 'Marks' with an abstract method 'getPercentage'. It is inherited by two other classes 'A' and 'B' each having a method with the same name which returns the percentage of the students. The constructor of student A takes the marks in three subjects as its parameters and the marks in four subjects as its parameters for student B. Create an object for each of the two classes and print the percentage of marks for both the students.

- Write a program to print the factorial of a number by defining a method named 'Factorial'. Factorial of any number n is represented by n! and is equal to $1*2*3*. *(n-1) *n$. E.g.- o $4! = 1*2*3*4 = 24$ o $3! = 3*2*1 = 6$ o $2! = 2*1 = 2$ o Also, $1! = 1$ o $0! = 0$

☐

- Create a class named 'Shape' with a method to print "This is this is shape". Then create two other classes named 'Rectangle', 'Circle' inheriting the Shape class, both having a method to print "This is rectangular shape" and "This is circular shape" respectively. Create a subclass 'Square' of 'Rectangle' having a method to print "Square is a rectangle". Now call the method of 'Shape' and 'Rectangle' class by the object of 'Square' class.

- W.A.J. P to demonstrate try catch block,

- Take two numbers from the user and perform the division operation and handle Arithmetic Exception. O/P- Enter two numbers: 10 0 o Exception in thread main java.lang.ArithmeticException:/ by zero

- W.A.J. P to demonstrate multiple catch blocks, (one is to handle divide by zero exception and another one is to handle   o Array IndexOutOfBoundException)   int a [] =new int [5]; a [5]=30/0;

- W.A.J. P to implement the above program (pro.no-B27) using nesting of try-catch block. try { o try o {//code} o catch (Exception e) o {//code} o catch (Exception e) o {//code}

- W.A.J. P to demonstrate try catch block, take two numbers from the user by Command line argument and perform the division operation and handle Arithmetic o O/P-

- W.A.J.P to create the validate method that takes integer value as a parameter. If the age is less than 18, then throw an Arithmetic Exception otherwise print a message welcome to vote.
    - o O/P- Enter your age: 16
    - o Exception in thread main java. lang. Arithmetic Exception: not valid

  W.A.J.Pto create a custom exception if Customer withdraw amount which is greater than account balance then program will show custom exception otherwise amount will deduct from account balance. Account balance is: 2000 Enter withdraw amount: 2500 o Sorry, insufficient balance, you need more 500 Rs. To perform this transaction.

- W.A.J.P to create a class Student with attributes roll no, name, age and course. Initialize values through parameterized constructor. If age of student is not in between 15 and 21 then generate user defined exception "AgeNotWithinRangeException". If name contains numbers or special symbols raise exception "NameNotValidException". Define the two exception classes.

- W.A.J. P to create one thread by implementing Runnable interface in Class.

- W.A.J. P to create one thread by extending Thread class in another Class.

- W.A.J.P to create 2 threads and execute that threads by providing sleep time as 2000ms and check the execution.

- W.A.J.P to start the same Thread twice by calling start () method twice.
    Test ThreadTwice1 t1=new TestThreadTwice1(); t1.start (); t1.start ();

- W.A.J.P to set the user defined name, priority and get that name and priority for 2 threads using setName (), setPriority (), getName (), getPriority () methods of Thread class.
    o TestMultiPriority1 m1=new TestMultiPriority1 ();
      TestMultiPriority1 m2=new TestMultiPriority1 (); m1.setName ("mythread-1"); m2.setName ("mythread- 2"); m1.setPriority (Thread.MIN_PRIORITY); m2.setPriority (Thread.MAX_PRIORITY); o
    m1.start (); m2.start ();

- W.A.J.P to create 2 threads and make one thread as Daemon Thread by using set Daemon () method of Thread class and check whether the thread is set daemon or not by using is Daemon () method.

- TestDaemonThread2   t1=new   TestDaemonThread2();   o TestDaemonThread2 t2=new TestDaemonThread2(); t1.start() o t1.setDaemon(true);//will throw exception here t2.start();
    Write a Java program to create a new array list, add some colours (string) and print out the collection.

- Write a Java program to iterate through all elements in an array list.

- Write a Java program to insert an element into the array list at the first position.
- Write a Java program to retrieve an element (at a specified index) from a given array list.
- Write a Java program to update specific array element by given element.
- Write a Java program to remove the third element from an array list.
- Write a Java program to search an element in an array list.
- Write a Java program to sort a given array list.
- Write a Java program to copy one array list into another.
- Write a Java program to shuffle elements in an array list.
- Write a Java program to append the specified element to the end of a hash set.
- Write a Java program to iterate through all elements in a hash list.
- Write a Java program to get the number of elements in a hash set.
- Write a Java program to associate the specified value with the specified key in a HashMap.
- Write a Java program to count the number of key-value (size) mappings in a map.
- Write a Java program to reverse elements in an array list.
- Write a Java program to extract a portion of an array list.
- Write a Java program to compare two array lists.
- Write a Java program of swap two elements in an array list.
- Write a Java program to join two array lists.
- Write a Java program to convert a hash set to an array.
- Write a Java program to convert a hash set to a List/ArrayList.
- Write a Java program to check whether a map contains key-value mappings (empty) or not.
- Write a Java program to increase the size of an array list.

Write a Java program to replace the second element of an ArrayList with the specified element.

- Write a Java program to print all the elements of an ArrayList using the position of the elements.

- Write a Java program to compare two sets and retain elements which are same on both sets.

- Write a Java program to get a collection view of the values contained in this map.

Module – 3

Field	Type	Null	Key	Default
Empno	int(4)	NO	PRI	0
Ename	varchar(10)	YES		(NULL)
Job	varchar(9)	YES		(NULL)
Mgr	int(4)	YES		(NULL)
Hiredate	date	YES		(NULL)
Sal	decimal(7,2)	YES		(NULL)
Comm	decimal(7,2)	YES		(NULL)
Deptno	int(2)	YES	MUL	(NULL)

DEPT TABLE:

Field	Type	Null	Key	Default
Deptno	int(2)	NO	PRI	0
Dname	varchar(14)	YES		(NULL)
Loc	varchar(13)	YES		(NULL)

STUDENT TABLE:

Field	Type	Null	Key	Default
Rno	int(2)	NO	PRI	0
Sname	varchar(14)	YES		(NULL)

City	varchar(20)	YES		(NULL)
State	Varchar(20)	YES		(NULL)

EMP_LOG TABLE:

Field	Type	Null	Key	Default
Emp_id	int(5)	NO		(NULL)
Log_date	Date	YES		(NULL)
New_salary	Int(10)	YES		(NULL)
Action	Varchar(20)	YES		(NULL)

DEPT TABLE DATA:

Deptno	dname	loc
10	ACCOUNTING	NEW YORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

EMP TABLE DATA:

Empno	ename	job	mgr	hiredate	sal	comm	deptno
7369	SMITH	CLERK	7902	1980-12-17	800.00	(NULL)	20
7499	ALLEN	SALESMAN	7698	1981-02-20	1600.00	300.00	30
7521	WARD	SALESMAN	7698	1981-02-22	1250.00	500.00	30
7566	JONES	MANAGER	7839	1981-04-02	2975.00	(NULL)	20
7654	MARTIN	SALESMAN	7698	1981-09-28	1250.00	1400.00	30
7698	BLAKE	MANAGER	7839	1981-05-01	2850.00	(NULL)	30
7782	CLARK	MANAGER	7839	1981-06-09	2450.00	(NULL)	10
7788	SCOTT	ANALYST	7566	1987-06-11	3000.00	(NULL)	20
7839	KING	PRESIDENT	(NULL)	1981-11-17	5000.00	(NULL)	10

7844	TURNER	SALESMAN	7698	1981-08-09	1500.00	0.00	30
7876	ADAMS	CLERK	7788	1987-07-13	1100.00	(NULL)	20
7900	JAMES	CLERK	7698	1981-03-12	950.00	(NULL)	30
7902	FORD	ANALYST	7566	1981-03-12	3000.00	(NULL)	20
7934	MILLER	CLERK	7782	1982-01-23	1300.00	(NULL)	10

a) Select unique job from EMP table.

b) List the details of the emps in asc order of the Dptnos and desc of Jobs?

c) Display all the unique job groups in the descending order?

d) List the emps who joined before 1981.

e) List the Empno, Ename, Sal, Daily sal of all emps in the asc order of Annsal.

f) List the Empno, Ename, Sal, Exp of all emps working for Mgr 7369.

g) Display all the details of the emps who's Comm. Is more than their Sal?

h) List the emps who are either 'CLERK' or 'ANALYST' in the Desc order.

i) List the emps Who Annual sal ranging from 22000 and 45000.

j) List the Enames those are starting with 'S' and with five characters.

k) List the emps whose Empno not starting with digit78.

l) List all the Clerks of Deptno 20.

m) List the Emps who are senior to their own MGRS.

n) List the Emps of Deptno 20 who's Jobs are same as Deptno10.

o) List the Emps who's Sal is same as FORD or SMITH in desc order of Sal.

p) List the emps whose jobs same as SMITH or ALLEN.

q) Any jobs of deptno 10 those that are not found in deptno 20.

r) Find the highest sal of EMP table.

s) Find details of highest paid employee.

t) Find the total sal given to the MGR.

u) List the emps whose names contains 'A'.

v) Find all the emps who earn the minimum Salary for each job wise in ascending order.

w) List the emps whose sal greater than Blake's sal.

x) Create view v1 to select ename, job, dname, loc whose deptno are same.

y) Create a procedure with dno as input parameter to fetch ename and dname.

z) Add column Pin with bigint data type in table student. aa) Modify the student table to change the sname length from 14 to 40. Create trigger to insert data

in emp_log table whenever any update of sal in EMP table. You can set action as 'New Salary'.

- Write swing example with database connectivity to achieve the following.

Module – 4

- Write a Java program to fetch data from web.xml to Servlet using ServletConfig.
- Write a Java program to fetch data from web.xml to Servlet using ServletCotext.
- Write a Java program to submit student information (fname, lname, email, mobile, gender, password) using jsp form to servlet. Fetch data at servlet and print all the data in console.
- Write above Java program and print fetched data on another jsp using expression language.

- Write a Java program to fetch all the data from database table and print on jsp page using JSTL SQL tag library.
- Write a Java program to validate jsp form server side.
  o First Name: Only Alphabets Last Name: Only Alphabets Mobile: Only 10 Numbers Email: Standard Email Id o Password: Minimum One 1 Upper, Minimum 1 Lower, Minimum 1 Digit, Minimum 1 Special Character from @, #, $, %, _, & I2. Write CRUD operation using jsp only.

- Write a jsp/servlet CRUD operation for following.   Student:

  a) Int id;(primary key, Auto Increment)
  b) String fname, lname, email, mobile, gender, password;
  c) Need to use bootstrap responsive template for the same.
  d) Use client side validation to for all data input.
  e) Use regular expression for email for standard email input.
  f) Use regular expression for password like(Test@123)
  g) Use server side validation (Filter) same as client side validation.
  h) All the inserted data should be show in show.jsp with edit and delete functionality.
  i) Store all the deleted record in table named deleted data.

Module – 5

- Write a Java dynamic application "Message Passing System "using MVC and JDBC.
  User:
  Int uid ;(primary key, auto increment)
  String fname, lname, email, mobile; Message: Int uid;

String from, to, msg; o Create one registration form
to register user.

a) Do client and server side validation. Use AJAX to register with unique email id.
b) After successful registration confirmation email should be sent to user's email id with one OTP.
c) Verify OTP and then and then allowed to login to the user. After successful login user can edit their profile.
d) Also one user can send some msg to another user using their email id.
e) When another user logged in they are able to see msg sent by a particular user and also can reply.
f) Logout button is there to invalidate session.
g) Also take care when user logged out and press back button on browser then it should be in logged out mode.

Module – 6

- W.A.J.P to insert below data from jsp to MySQL database using ". cfg.cml" and ". hbm.xml" file. Variable id must be primary key and auto increment o Int id
    o String first name, last name, email, mobile, password, gender

- W.A.J.P using above configuration with annotation and also show login jsp after data insert or registration.

- Write above Java program for after successful registration student can login and if login credentials are correct then show student's home page with his/her detail.

- Write above Java program for after successful login student can able to view and edit his/her profile with logout option. Also need to upload and show student's picture on his/her profile's home page.

o All the Questions Below Need to Perform Using Some Bootstrap o Design Templates "

Module – 7

- Write a program to demonstrate the setter based dependency injection.
- Write a program to demonstrate the constructor based dependency injection.
- Write a program to demonstrate the object based dependency injection and also implement inner bean concept in your spring beans configuration file.
- Write a program to collect 5 student information using spring collection(List) in spring bean configuration file.
- Student:
    o Int id; o String fname, lname, email, mobile.

- Write a Spring ORM application to demonstrate following things.
    a) Need to use bootstrap template.
    b) There will be 2 modules. User and Admin.
    c) User (id, firstname, lastname, email, mobile, password, gender, profile_pic) have to register to the site. (registration.jsp)

    d) Then user have to login(login.jsp) and can able to edit profile like email, mobile or profile_pic.
    e) Admin can login to the site and able see all the user registered with system and also able to delete profile of a user.

- Write a Spring MVC+ORM application to demonstrate the following

Spring MVC Form				Add User

All Users

#ID	Name	Email	framework	Action
100	mkyong	mkyong@gmail.com	Spring MVC , GWT	Query Update Delete
101	alex	alex@yahoo.com	Spring MVC , PLAY	Query Update Delete
102	joel	joel@gmail.com	Spring MVC , JSF 2	Query Update Delete

a) Add user with validation.

b) On clicking Query display single user data.

c) Update is for changes in user data.

d) Delete data.

e) Use bootstrap for UI part.

Android

Module -1) Introduction

- What is software
- Types of application

- What is mobile application
- Difference between mobile application and web application.
- Who developed Android

Module -2) Kotlin Programing

- Print "Hello World!!!" (print)
- Kotlin Program to Print an Integer (Entered by the User)
- Kotlin Program to Add Two Integers
- Kotlin Program to Multiply two Floating Point Numbers and Program to Find ASCII value of a character
- Kotlin Program to Compute Quotient and Remainder
- Kotlin Program to Check Whether a Number is Even or Odd
- Kotlin Program to Find the Frequency of Character in a String
- WAP to find max value using function as express
- Write simple function name start() return the string "OK" (basic function)
- WAP to create map instance and store values with State, City pair. Also print all value using loop. (Hashmap)

Module -3) Android Fundamental

- Create "hello world" application
- Change screen background color on different button click event

- Navigate between one screen to another screen

- Pass data from one screen to second screen

- Design login and registration screen

- What is R.java file

- What is activity and activity lifecycle

- What is fragment and fragment lifecycle

- Activity to fragment and fragment to activity

Module -4) Android UI Development

- Create an application to take input number from user and print its reverse number in TextView without button.

- Create an application to input 2 numbers from user and all numbers between those 2 numbers in next activity

- Create an application with radio buttons (Add, Subtraction, Multiply, Division) EditText (number1, number2) and print result as per user choice from radio button in TextView

- Write a code to display login form when click on login button and registration form when click on registration button on single activity using fragment

- Create an application to load google url into webview also manage forward and backward redirect

- In Previous Practical write code to check weather internet connection is available or not if

- no internet connection then display message accordingly
- create an application to hide TextView when first button click and show when second button click

- Create an application to add TextView in TableLayout Programmatically

- create an application to open pdf using implicit intent

- create an application to increate font size when plus button click and decrease when minus button click

- create an application to display n edittext where n is number input by user

- Create an application to display Textview when checkbox is checked and hide otherwise A6 Write a program to show four images around Textview.

- Write a program to create one string array in string.xml file and that array show in listview

- Write a program in android display screen color which the Color will be select from the radio button.

- Write a program you have taken three seek bar controls. From three Seekbar which Seek bar value changed the background color of device will be changed.

- Create custom toolbar as per given below design

- Create toolbar with spinner and search functionality

Module - 5) Android Offline-Online Database

- Create an application of todo app using SQLite with function lite to create list of upcoming task, completed task, remove task, update task in daily activity.
- Create a Sticky Notes app with proper customization which can insert, view, update, delete using SQLite database

- To create task management application for adding, updating, deleting the task and show the tasks in the listview or gridview. Task have name, description, date, time, priority. Sort the task by the date and time wise. If task is due then automatically show as blue color. It will search the tasks by date wise. If high priority then show as red color, average priority as blue color, low priority as green color. Select specified item an open context menu to select "Complete the Task" then this task

- Create an application in which employee can login and register with MySQL database

- In previous application after logging employee can insert, update and delete project details create an application to select employee profile page in which employee can upload profile pic selected from gallery or camera after login to application.

Module - 6) Advanced Android Development

- Create an application to display Google map with current location also give options to change mode in map

- Create an application to input address and display marker on that address

- Create an application to suggest places as user type with help of Place autocomplete service provide by Google
- Write a code to rotate image and blink image

- Write a code to move image from one place to another place Write a code to zoom in / out image using animation
- Write a code to show progress frame by frame animation and set animation on splash screen with app logo.

Module - 7) Advanced Android Development

- Create an application to play song from raw resource folder
- Create an application to play song from mobile memory
- Create an application to play song from Server & use WAKE LOCK when playing video play
- Create an application to convert text typed in edit text into speech
    - Create an application for Wi-Fi on-off

Module-8) Application Deployment – Play Store

- Deploy application on play store

Web Designing

MODULE: 1 (HTML)

- Are the HTML tags and elements the same thing?
- What are tags and attributes in HTML?
- What are void elements in HTML?
- What are HTML Entities?
- What are different types of lists in HTML? • What is the 'class' attribute in HTML?
- What is the difference between the 'id' attribute and the 'class' attribute of HTML elements?
- What are the various formatting tags in HTML?
- How is Cell Padding different from Cell Spacing?
- How can we club two or more rows or columns into a single row or column in an HTML table?
- What is the difference between a block-level element and an inline element?
- How to create a Hyperlink in HTML?
- What is the use of an iframe tag?
- What is the use of a span tag? Explain with example?
- How to insert a picture into a background image of a web page?
- How are active links different from normal links?
- What are the different tags to separate sections of text?
- What is SVG?
- What is difference between HTML and XHTML?
- What are logical and physical tags in HTML?

MODULE: 2 (CSS and CSS 3)

- What are the benefits of using CSS?
- What are the disadvantages of CSS?

- What is the difference between CSS2 and CSS3?

- Name a few CSS style components

- What do you understand by CSS opacity?

- How can the background color of an element be changed?

- How can image repetition of the backup be controlled?

- What is the use of the background-position property?
- Which property controls the image scroll in the background?

- Why should background and color be used as separate properties?

- How to center block elements using CSS1?

- How to maintain the CSS specifications?

- What are the ways to integrate CSS as a web page?

- What is embedded style sheets?

- What are the external style sheets?

- What are the advantages and disadvantages of using external style sheets?

- What is the meaning of the CSS selector?

- What are the media types allowed by CSS?

- What is the rule set?

- Create Layouts
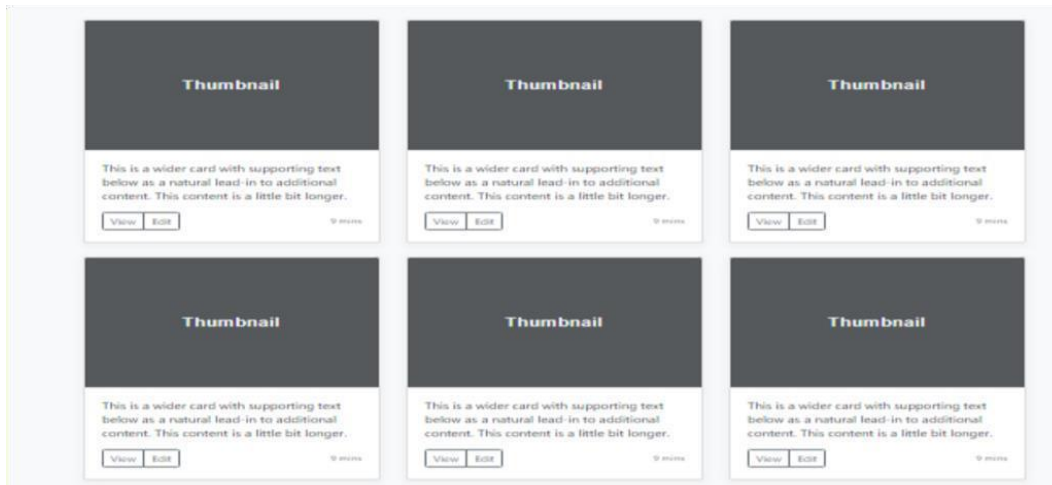
MODULE: 3 (HTML 5)

- What are the new tags added in HTML5?
- How to embed audio and video in a webpage?
- Semantic element in HTML5?
- Canvas and SVG tags

MODULE: 4 (JavaScript Basic & DOM)

- What is JavaScript?
- What is the use of isNaN function?
- What is negative Infinity?
- Which company developed JavaScript?
- What are undeclared and undefined variables?
- Write the code for adding new elements dynamically?
- What is the difference between ViewState and SessionState?
- What is === operator?
- How can the style/class of an element be changed?
- How to read and write a file using JavaScript?

- What are all the looping structures in JavaScript?
- How can you convert the string of any base to an integer in JavaScript?
- What is the function of the delete operator?
- What are all the types of Pop up boxes available in JavaScript?
- What is the use of Void (0)?
- How can a page be forced to load another page in JavaScript?
- What are the disadvantages of using innerHTML in JavaScript?

MODULE: 5 (JQuery Basic, Effects & Advance)

- What is JQuery?
- How to Apply CSS Using JQuery, How to Add Class and Remove Class in JQuery, JQuery Animation?
- How to create slider with animation?

MODULE: 6 (Bootstrap Basic & Advance)

- What are the advantages of Bootstrap?
- What is a Bootstrap Container, and how does it work?
- What are the default Bootstrap text settings?
- What do you know about the Bootstrap Grid System?
- What is the difference between Bootstrap 4 and Bootstrap 5
- What is a Button Group, and what is the class for a basic Button Group?
- How can you use Bootstrap to make thumbnails?
- In Bootstrap 4, what is flexbox?
- How can one create an alert in Bootstrap?
- What is a bootstrap card and how would you create one?

Advance JavaScript

MODULE: 1 (Introduction and Code Quality)

● Write a program to Show an alert

● What will be the result for these expressions?

1.   5 > 4

2. "apple" > "pineapple"

3. "2" > "12"

4. undefined == null

5. undefined === null

6. null == "\n0\n"

7. null === +"\n0\n"

- Will alert be shown?

```
if ("0") { alert( 'Hello'); }
```

- What is the code below going to output? alert(null || 2 || undefined); •
  The following function returns true if the parameter age is greater than
  18. Otherwise it asks for a confirmation and returns its result:

```
function  checkAge(age)

{

                if (age> 18) { return true; }

 else {

     // ...return confirm ('did parents allow you?');

    }

}
```

- Replace Function Expressions with arrow functions in the code below:

```
Function  ask(question, yes, no)

{ if (confirm(question))yes(); else

     no();

}    ask("Do    you    agree?",
function()

{ alert("You agreed."); }, function() {  alert("You
canceled the execution."); }

    }
```

MODULE: 2 (Data Types and Objects)

- Write the code, one line for each action: a) Create an empty object user.

b) Add the property name with the value John.
c) Add the property surname with the value Smith.
d) Change the value of the name to Pete.
e) Remove the property name from the object.

- Is array copied?

  let fruits = ["Apples", "Pear", "Orange"]; // push a new value into the "copy"

  let shoppingCart = fruits; shoppingCart.push("Banana"); // what's in fruits?

  alert(fruits.length); // ?

- Map to names

  let john = { name: "John", age: 25 }; let pete = { name: "Pete", age: 30 }; let
  mary = { name: "Mary", age: 28 }; let users = [john, pete, mary]; let names
  = /* ... your code */ alert(names); // John, Pete, Mary

- Map to objects
  let john = { name: "John", surname: "Smith", id: 1 }; let pete = { name:
  "Pete", surname: "Hunt", id: 2 }; let mary = { name: "Mary", surname:
  "Key", id: 3 }; let users = [john, pete, mary]; let usersMapped = /* ... your
  code ... */

  /*   usersMapped

  = [

    { fullName: "John Smith", id: 1 },

    { fullName: "Pete Hunt", id: 2 },

{ fullName: "Mary Key", id: 3 }

]

*/ alert(usersMapped[0].id) // 1 alert(usersMapped[0].fullName) // John Smith

- Sum the properties There is a salaries object with arbitrary number of salaries. Write the function sumSalaries(salaries) that returns the sum of all salaries using Object.values and the for..of loop.If salaries is empty, then the result must be 0. let salaries = {

    "John": 100,

    "Pete": 300,

    "Mary": 250

    }; alert(sumSalaries(salaries)

); // 650

- Destructuring assignment We have an object: Write the Destructuring assignment that reads:
    a) Name property into the variable name.
    b) Year's property into the variable age.
    c) isAdmin property into the variable isAdmin (false, if no such property)
    d) let user = { name: "John", years: 30};
- Turn the object into JSON and back Turn the user into JSON and then read it back into another variable.

  user = { name: "John Smith", age: 35};

MODULE: 3 (Document, Event and Controls)

- Create a program to hide/show the password
- Create a program that will select all the classes and loop over and whenever i click the button the alert should show
- Create a responsive header using proper JavaScript
- Create a form and validate using JavaScript
- Create a modal box using css and Js with three buttons
- Use external js library to show slider
- Prevent the browser when i click the form submit button

MODULE: 4 (New Request)

- What is JSON
- What is promises
- Write a program of promises and handle that promises also
- Use fetch method for calling an api https://fakestoreapi.com/products
- Display all the product from the api in your HTML page

MODULE: 7 (React – Applying Redux)

- What is Redux?
- What is Redux Thunk used for?
- What is Pure Component? When to use Pure Component over Component?

- What is the second argument that can optionally be passed to setState and what is its purpose?

- Create a Table and Search data from table using React Js?
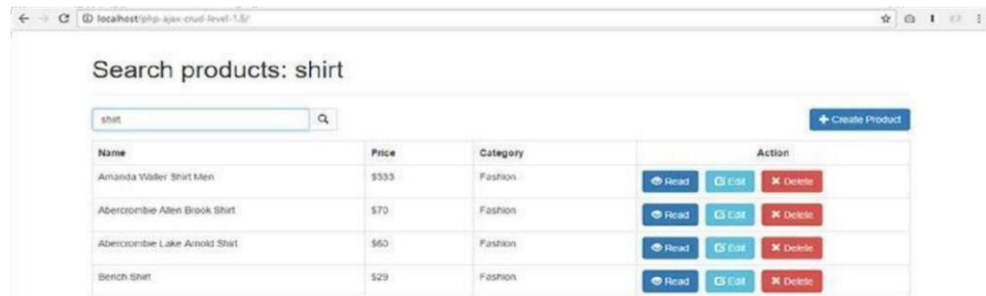
- Create Login registration with CRUD Application using API (Redux)

Python Assignments

Module – 2

- Write a Python program to check if a number is positive, negative or zero.
- Write a Python program to get the Factorial number of given number.
- Write a Python program to get the Fibonacci series of given range.
- How memory is managed in Python?
- What is the purpose continue statement in python?
- Write python program that swap two number with temp variable and without temp variable.
- Write a Python program to find whether a given number is even or odd, print out an appropriate message to the user.
- Write a Python program to test whether a passed letter is a vowel or not.
- Write a Python program to sum of three given integers. However, if two values are equal sum will be zero.
- Write a Python program that will return true if the two given integervalues are equal or their sum or difference is 5.
- Write a python program to sum of the first n positive integers.
- Write a Python program to calculate the length of a string.
- Write a Python program to count the number of characters (character frequency) in a string
- What are negative indexes and why are they used?
- Write a Python program to count occurrences of a substring in a string.
- Write a Python program to count the occurrences of each word in a given sentence
- Write a Python program to get a single string from two given strings, separated by a space and swap the first two characters of each string.
- Write a Python program to add 'ing' at the end of a given string (length should be at least 3). If the given string already ends with 'ing' then add 'ly' instead if the string length of the given string is less than 3, leave it unchanged.

- Write a Python program to find the first appearance of the substring 'not' and 'poor' from a given string, if 'not' follows the 'poor', replace the whole 'not'...'poor'substring with 'good'. Return the resulting string.
  Write a Python function that takes a list of words and returns the length of the longest one.
- Write a Python function to reverses a string if its length is a multiple of 4.
- Write a Python program to get a string made of the first 2 and the last 2 chars from a given a string. If the string length is less than 2, return instead of the empty string.

    o Sample String: w3resource' o
    Expected Result: 'w3ce' o Sample
    String: 'w3' o Expected Result:
    'w3w3' o Sample String: ' w' o
    Expected Result: Empty String
- Write a Python function to insert a string in the middle of a string.

Module – 3

- What is List? How will you reverse a list?
- How will you remove last object from a list?
- Suppose list1 is [2, 33, 222, 14, and 25], what is list1 [-1]?
- Differentiate between append () and extend () methods?
- Write a Python function to get the largest number, smallest num and sum of all from a list.
- How will you compare two lists?
- Write a Python program to count the number of strings where the string length is 2 or more and the first and last character are same from a given list of strings.
- Write a Python program to remove duplicates from a list.
- Write a Python program to check a list is empty or not.
- Write a Python function that takes two lists and returns true if they have at least one common member.
- Write a Python program to generate and print a list of first and last 5 elements where the values are square of numbers between 1 and 30.

- Write a Python function that takes a list and returns a new list with unique elements of the first list.
- Write a Python program to convert a list of characters into a string.
- Write a Python program to select an item randomly from a list.
- Write a Python program to find the second smallest number in a list.
  Write a Python program to get unique values from a list □
  Write a Python program to check whether a list contains a sub list
- □ Write a Python program to split a list into different variables.
- What is tuple? Difference between list and tuple.
- Write a Python program to create a tuple with different data types.
- Write a Python program to create a tuple with numbers.
- Write a Python program to convert a tuple to a string.
- Write a Python program to check whether an element exists within a tuple.
- Write a Python program to find the length of a tuple.
- Write a Python program to convert a list to a tuple.
- Write a Python program to reverse a tuple.
- Write a Python program to replace last value of tuples in a list.
- Write a Python program to find the repeated items of a tuple.
- Write a Python program to remove an empty tuple(s) from a list of tuples.
- Write a Python program to unzip a list of tuples into individual lists.
- Write a Python program to convert a list of tuples into a dictionary.
- How will you create a dictionary using tuples in python?
- Write a Python script to sort (ascending and descending) a dictionary by value.
- Write a Python script to concatenate following dictionaries to create a new one.
- Write a Python script to check if a given key already exists in a dictionary.
- How Do You Traverse Through A Dictionary Object In Python?
- How Do You Check The Presence Of A Key In A Dictionary?
- Write a Python script to print a dictionary where the keys are numbers between 1 and 15.
- Write a Python program to check multiple keys exists in a dictionary
- Write a Python script to merge two Python dictionaries

- Write a Python program to map two lists into a dictionary
- Write a Python program to combine two dictionary adding values for common keys.
    - d1 = {'a': 100, 'b': 200, 'c':300} o d2 = {'a': 300, 'b': 200,'d':400}
- Sample output: Counter ({'a': 400, 'b': 400,'d': 400, 'c': 300}).
- Write a Python program to print all unique values in a dictionary.
- Why Do You Use the Zip () Method in Python?
    Write a Python program to create and display all combinations of letters, selecting each letter from a different key in a dictionary.
    - Sample data: {'1': ['a','b'], '2': ['c','d']} o Expected Output:
    - ac ad bc bd
- Write a Python program to find the highest 3 values in a dictionary
- Write a Python program to combine values in python list of dictionaries. Sample data: [{'item': 'item1', 'amount': 400}, {'item': 'item2', 'amount': 300}, o {'item': 'item1', 'amount': 750}]
    - Expected Output: Counter ({'item1': 1150, 'item2': 300})
        - ☐ Write a Python program to create a dictionary from a string.
    - Note: Track the count of the letters from the string.
    Sample string:
    'w3resource'
    - Expected output: {'3': 1,'s': 1, 'r': 2, 'u': 1, 'w': 1, 'c': 1, 'e': 2, 'o': 1}
- Write a Python function to calculate the factorial of a number (a nonnegative integer)
- Write a Python function to check whether a number is in a given range ☐ Write a Python function to check whether a number is perfect or not.
- Write a Python function that checks whether a passed string is palindrome or not
- How do you perform pattern matching in Python? Explain
- What is lambda function in python? What we call a function which is incomplete version of a function?
- How Many Basic Types Of Functions Are Available In Python?

- How can you pick a random item from a list or tuple?
- How can you pick a random item from a range?
- How can you get a random number in python?
- How will you set the starting value in generating random numbers?
- How will you randomizes the items of a list in place?
- Write a Python program to read a random line from a file.
- Write a Python program to calculate the area of a trapezoid
- Write a Python program to calculate the area of a parallelogram
- Write a Python program to calculate surface volume and area of a cylinder
- Write a Python program to returns sum of all divisors of a number
- Write a Python program to find the maximum and minimum numbers from the specified decimal numbers.

Module – 4

- What is File function in python? What is keywords to create and write file.
- Write a Python program to read an entire text file.
- Write a Python program to append text to a file and display the text.
- Write a Python program to read first n lines of a file.
- Write a Python program to read last n lines of a file.
- Write a Python program to read a file line by line and store it into a list □ Write a Python program to read a file line by line store it into a variable.
- Write a python program to find the longest words.
- Write a Python program to count the number of lines in a text file.
- Write a Python program to count the frequency of words in a file.
- Write a Python program to write a list to a file.
- Write a Python program to copy the contents of a file to another file.
- Explain Exception handling? What is an Error in Python?
- How many except statements can a try-except block have? Name Some built-in exception classes:

- When will the else part of try-except-else be executed?
- Can one block of except statements handle multiple exception?
- When is the finally block executed?
- What happens when „1‟== 1 is executed?
- How Do You Handle Exceptions With Try/Except/Finally In Python? Explain with coding snippets.
- Write python program that user to enter only odd numbers, else will raise an exception.
- What are oops concepts? Is multiple inheritance supported in java
- How to Define a Class in Python? What Is Self? Give An Example Of A Python Class
- Write a Python class named Rectangle constructed by a length and width and a method which will compute the area of a rectangle
- Write a Python class named Circle constructed by a radius and two methods which will compute the area and the perimeter of a circle
- Write a Python class named Circle constructed by a radius and two methods which will compute the area and the perimeter of a circle
- Explain Inheritance in Python with an example? What is init? Or What Is A Constructor In Python?
- What is Instantiation in terms of OOP terminology?
- What is used to check whether an object o is an instance of class A?
- What relationship is appropriate for Course and Faculty?
- What relationship is appropriate for Student and Person?

Module – 5

- Why Django should be used for web-development? Explain how you can create a project in Django?
- How to check installed version of django?
- Mention what command line can be used to load data into Django?
- Explain what does django-admin.py make messages command is used for?
- What is .Django URLs?make program to create django urls
- What is a QuerySet?Write program to create a new Post object in database:

- Mention what command line can be used to load data into Django?
- Explain what does django-admin.py make messages command is used for?
- Make Django application to demonstrate following things o There will be 2 modules(Admin,Product manager) o Admin can add product name (ex.Product id and product name) ex. (1, Samsung), (2, Apple)...etc. Data should store in

    Product_mst table with product id as primary key o Admin can add product subcategory details Like (Product price, product image,

  o Product model, product Ram) data should store in

    Product_sub_cat table o Admin can get product name as foreign key from product_mst table in product_sub_category_details page

  o Admin can view, update and delete all registered details of product

  o   product manager can search product on search bar and get all details about product

Module – 6

☐ Create Django REST api using below instruction.

  o Create Book Model

    ▪ Title
    ▪ Author
    ▪ Isbn
    ▪ Publisher o Using Serialize, display all data in REST API o Also Using REST API, perfume CRUD Operation

Ethical Hacking

Module -1

- Difference between hardware and software.
- Define IP address range and private address range.
- Explain Network protocol and Port number.
- Explain Types of Network Devices

Module – 2

- What are the types of hacker?
- Explain in brief - Ethical hacking and cyber security.
- Explain Foot printing Methodology
- Find basic information using Google advance search operator and Pipl search
- Find vulnerability tool and check open port and service.

Module – 3

- What are the different types of hacking methods? Ethical Hacking
- Explain Types of Password Attacks
- Explain Password Cracking Tools: pwdump7
- Explain Types of Steganography with QuickStego
- Perform Practical on key logger tool.

Module-4

- Define Types of Viruses.
- Create virus using Http Rat Trojan tool.
- Explain any one Antivirus with example

Module-5

- Explain MAC spoofing and Email spoofing.
- Perform practical of MITM tool and social engineering Tool.
- Explain Kali Linux tool SYN Flooding Attack using Metasploit
- Find online email encryption service
- Types of Firewalls.
- Explain Evading Firewalls.

Module – 6

- What is Session Hijacking Explain with Techniques?
- Find DoS/DDoS Attack Tools.
- Explain SYN Flooding Attack with example
- List of Web App Hacking Methodology
- SQL Injection Methodology
- Explain sql injection with any tool

Module – 7

- Wireless Terminologies
- Types of Wireless Antenna
- How to secure your mobile phone
- List of Android Phones Security Tools
- Perform practical Android phone hacking.