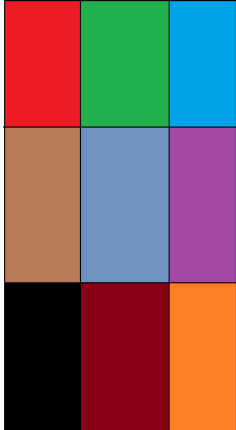
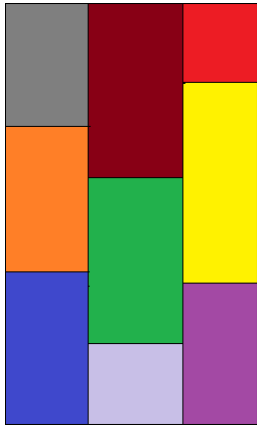




Lab	Type	Practical
<b>Unit : I – Introduction to Dart Programming Language</b>		
<b>1</b>	<b>A.</b>	Introduction to android studio.
	<b>A.</b>	Dart programming overview.
	<b>A.</b>	Steps to create first dart program in android studio.
	<b>A.</b>	Write a dart program to print “Welcome to Dart and Flutter.”
	<b>A.</b>	Write a dart program to print your name and address with proper format.
<b>2</b>	<b>A.</b>	Write a dart code to print the addition of 2 numbers.
	<b>A.</b>	Write a dart code to convert temperature from Fahrenheit to Celsius. [°C = [(°F-32)×5]/9, °F = (°C * 1.8)+32]
	<b>A.</b>	Write a dart code to find the percentage of 5 subjects.
	<b>A.</b>	Write a dart code that reads a number in meters, converts it to feet, and displays the result.
	<b>B.</b>	Body Mass Index (BMI) is a measure of health on weight. It can be calculated by taking your weight in kilograms and dividing by the square of your height in meters. Write a dart code that prompts the user to enter a weight in pounds and height in inches and display the BMI. <b>Note: 1 pound = .45359237 kg and 1 inch = 0.0254 meters</b>
	<b>C.</b>	Write a dart program to enter your name and age, concatenate the strings and print on console.
<b>3</b>	<b>A.</b>	Write a dart code to check whether the given number is positive or negative.
	<b>A.</b>	Write a dart code to perform Addition, Subtraction, Multiplication, Division based on user choice using <b>if, if..else..if, &amp; switch</b> .
	<b>A.</b>	Write a dart program to find out the largest number from three numbers without using Logical Operator.
	<b>A.</b>	Write a dart program to read marks of five subjects. Calculate percentage and print class accordingly. Fail below 35, Pass Class between 35 to 45, Second Class between 45 to 60, First Class between 60 to 70, Distinction if more than 70.
	<b>B.</b>	Write a dart program to find out the largest number from the given 3 numbers using the conditional/ternary operator.
	<b>C.</b>	Write a dart code to make a Simple Calculator using <b>switch...case</b> .
<b>4</b>	<b>A.</b>	Write a dart code to print numbers between two given numbers which are divisible by 2 but not divisible by 3.
	<b>A.</b>	Write a dart code to find the factorial of the given number.
	<b>A.</b>	Write a dart code to find whether the given number is prime or not.
	<b>A.</b>	Write a dart code to print a given number in reverse order.
	<b>B.</b>	Write a dart code to print the reverse string.
	<b>C.</b>	Write a dart code program to calculate the sum of all positive even numbers and the sum of all negative odd numbers from a set of numbers. You can enter 0 (zero) to quit the program and thus it displays the result.


5	<p>(Using <b>named</b> parameter, <b>positional</b> parameter, <b>default</b> parameter only)</p> <ul style="list-style-type: none"> <li>A. Write a dart program to calculate simple interest using method.</li> <li>A. Write a dart program to find the maximum number from two given numbers using method.</li> <li>A. Write a dart program to generate a Fibonacci series of N given numbers using method.</li> <li>A. Write a dart program to accept a number and check whether the number is prime or not with method name check(int n). If the number is prime, it returns 1 otherwise, it returns 0.</li> <li>B. Write a dart program that calculates area of circle, triangle and square using method overloading.</li> <li>C. Write a dart program to count the number of even or odd numbers from an array/list of n numbers.</li> <li>C. Write a dart program to accept n numbers in an array/list. Display the sum of all the numbers which are divisible by either 3 or 5.</li> </ul>
6	<ul style="list-style-type: none"> <li>A. Write a dart program to insert int numbers into List&lt;int&gt; and display in terminal. Write a dart program to insert Strings into List&lt;String&gt; and display in terminal.</li> <li>A. Write a dart program to insert double into List&lt;double&gt; and display in terminal and do sum of all numbers and print it with 2 decimal places only. Ex: Total = 22.39998 =&gt; 22.40</li> <li>B. Write a dart program to insert all types of values into List&lt;dynamic&gt; and print it in terminal.</li> <li>B. Write a dart program to sort values in List&lt;int&gt;. Ex. Input: [13, 2, -11, 140, -387, 0] Result: [-387, -11, 0, 2, 13, 140]</li> <li>C. Write a dart program to insert objects in List&lt;dynamic&gt; using function and display it using function. (Name, Age, Hobby).</li> </ul>
7	<ul style="list-style-type: none"> <li>A. Create a class named <b>Candidate</b> with <i>Candidate_ID</i>, <i>Candidate_Name</i>, <i>Candidate_Age</i>, <i>Candidate_Weight</i> and <i>Candidate_Height</i> as data members. Create a method <b>GetCandidateDetails()</b> and <b>DisplayCandidateDetails()</b>. Create a main method to demonstrate the <b>Candidate</b> class.</li> <li>A. Create a class named <b>Bank_Account</b> with <i>Account_No</i>, <i>User_Name</i>, <i>Email</i>, <i>Account_Type</i>, and <i>Account_Balance</i> as data members. Also create a method <b>GetAccountDetails()</b> and <b>DisplayAccountDetails()</b>. Create a main method to demonstrate the <b>Bank_Account</b> class.</li> <li>A. Write a dart code to create a <b>Circle</b> class with <b>area()</b> and <b>perimeter()</b> function to find <i>area</i> and <i>perimeter</i> of the circle.</li> <li>B. Define <b>Time</b> class with <i>hour</i> and <i>minute</i> as data member. Also define <b>addition()</b> method to add two-time objects.</li> <li>C. Create a class named '<b>Member</b>' having members: <i>Name</i>, <i>Age</i>, <i>Phone number</i>, <i>Address</i>, <i>Salary</i>. It also has a method named '<b>printSalary()</b>' which prints the salary of the members. Two classes '<b>Employee</b>' and '<b>Manager</b>' inherit the '<b>Member</b>' class. The '<b>Employee</b>' and '<b>Manager</b>' classes have data members '<i>specialization</i>' and '<i>department</i>' respectively. Now, assign name, age, phone number, address and salary to an employee and a manager by making an object of both classes and print the same along with specialization and department respectively.</li> </ul>

8	<ul style="list-style-type: none"> <li>A. Write a dart program to create class Shape that has a method called colorShape(). Subclass of Shape is Circle and it has its own implementation of shape color.</li> <li>A. Write a dart program to pass a method as an argument to another class.</li> <li>A. Write a dart program that prompts the user to enter 5 numbers, store them in a List, and display them in increasing order.</li> <li>A. Write a dart program to read 2 lists and return a list that contains only the common elements.</li> <li>A. Write a dart program that creates a List with the values "Delhi", "Mumbai", "Bangalore", "Hyderabad" and "Ahmedabad". Then replace "Ahmedabad" with "Surat" in the above List.</li> <li>B. Write a dart program to create and read phonebook dictionary.</li> <li>B. Write a dart program to find friends' details by their name using a dictionary. (Create a local dictionary and search from it using Map&lt;String, Object?&gt; &amp; Model Class).</li> <li>B. Write a dart program to get the current date from the system and change format into different date formats. dd/MM/yyyy dd-MM-yyyy dd-MMM-yyyy dd-MM-yy dd MMM, yyyy</li> <li>C. Write a dart program to create a common date format method in Util Class and access in different classes (with and without inheritance).</li> </ul>
<b>Unit : II – Flutter Architecture &amp; UI Design</b>	
9	<ul style="list-style-type: none"> <li>A. Create a flutter project with proper name in Android Studio and observe different files for programming.</li> <li>A. Write flutter code to divide horizontal space of screen in 3 different equal parts with different colors.</li> <li>A. Write flutter code to divide the vertical space of the screen in 3 different equal parts with different colors.</li> <li>A. Write flutter code to display "hello world" using Text widget. Change color &amp; size of text using different properties.</li> <li>A. Write flutter code to create a custom Text widget with different fonts &amp; use it.</li> <li>B. Write flutter code to use TextField and print the input value into the terminal using the controller.</li> <li>B. Write flutter code to use TextField &amp; apply different borders, floating labels, hint text etc.</li> <li>B. Write flutter code to print TextField value into Text widget on a click of a Button.</li> </ul>

	C.	<p>Write flutter code to divide the whole screen into 9 equal sizes and different sizes with different colors as shown below.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>
10	A.	<p>Write flutter code to display an Image into the Image asset widget from the asset folder. Write flutter code to display an Image from a WEB URL using a cached network Image. Write flutter code to use Stack widget and show text upon an Image.</p> <p>A. Write flutter code to perform navigation between two different pages using a material page route.</p> <p>B. Write flutter code to perform navigation between two different pages using a named route.</p> <p>B. Write flutter code to use the bottom NavigationBar &amp; on click display different pages.</p> <p>C. Write flutter code to create a birthday card using different widgets.</p> <p>C. Write flutter code to roll a dice on the Button click event.</p> <p>C. Write flutter code to create a dynamic Birthday card.</p>
11	A.	<p>Write flutter code to create login screen login for username &amp; password using Textfield, Button etc.</p> <p>A. Write flutter code to do validation in the login screen. Perform email validation &amp; password validation on Button click.</p> <p>B. Write flutter code to create a registration screen using different widgets.</p> <p>B. Write flutter code to do validation in the registration screen.</p> <p>B. Write flutter code to add password visibility icon in the Text field.</p>
<b>Custom Apps-1: Screen design</b>		
12	A.	Write flutter code for any four screen designs of your choice.

13	A.	<p>Write flutter code for below screen designs based on flutter widgets and implement validations.</p> <p><b>Screen contains below elements</b></p> <ul style="list-style-type: none"> <li>• First Name</li> <li>• Last Name</li> <li>• Email Address</li> <li>• Mobile Number</li> <li>• Date of Birth</li> <li>• City</li> <li>• Gender</li> <li>• Hobbies</li> <li>• Password</li> <li>• Confirm Password</li> </ul> 
14	A.	Write flutter code for the screen designs to perform CRUD operations using list and map on the data and display refreshed data.
<b>Unit : III – Scrollable Widgets &amp; Navigation</b>		
15	A.	<p>Write flutter code to create a list of numbers and display using Listview.</p> <p>A. Write flutter code to create a list of numbers and display using Listview.builder.</p> <p>A. Write flutter code to create a list of images path in List&lt;String&gt; and display it using Gridview and then Gridview.builder.</p> <p>B. Write flutter code to create a list of users using List&lt;Map&lt;String,dynamic&gt;&gt; and display data inside Listview.builder (Name, Surname, Birthdate, City).</p> <p>B. Write flutter code to create a list of users using List&lt;UserModel&gt; and display using Gridview.builder.</p>
16	A.	<p>Write flutter code to use TabView and display different pages on different tab clicks.</p> <p>A. Write flutter code to use the NavigationDrawer &amp; display different pages on different menu clicks.</p> <p>A. Write flutter code to use the ActionBar widget and display menu in it and display Alert Dialog on menu click.</p> <p>B. Write flutter code to navigate from one page to another page using material page route.</p> <p>B. Write flutter code to navigate from one page to another page and pass data to another page using constructor.</p> <p>C. Write flutter code to navigate from list page to detail page then return value to previous page using Navigator.pop() and refresh the list.</p>

Unit : IV – Database Connection		
17	A	Write flutter code to design an entry screen with Name and Address fields for employee details. Create a database with Employee detail table with two fields name and address using sqlite. Perform insert and read operations on the table.
18	A.	Write flutter code to design an entry screen with Name, DOB, City, Address, Contact and Email for employee details. Create a database with Employee detail table for the fields (Name, DOB, City, Address, Contact and Email) using sqlite. Perform insert and read operations. Search a particular record and perform an update operation.
19	A	Write flutter code to design the first entry screen with Name, DOB, City, Address, Contact and Email for employee details. And a second screen with Department name, Designation, Date of joining to maintain employee department details. Create Employee database, Employee detail table for the fields (EmpID, Name, DOB, City, Address, Contact and Email) and EmpDepartment table for the fields (EmpID, DeptID, DeptName, Designation and DateOfJoining) using sqlite database. Perform insert and read operations. Perform update and delete operations on the table after searching a particular record. Display updated data in the next screen.
Custom Apps-2: Implement Matrimony Application		
20	A.	<p>Perform Insert operation for User screen</p> <p><b>Screen contains below elements</b></p> <ul style="list-style-type: none"> <li>• First Name</li> <li>• Last Name</li> <li>• Email Address</li> <li>• Mobile Number</li> <li>• Date of Birth</li> <li>• City</li> <li>• Gender</li> <li>• Hobbies</li> <li>• Password</li> <li>• Confirm Password</li> </ul> 

21	<p><b>A.</b> Perform Read, Search operation</p> <p><b>User Item contains below elements</b></p> <ul style="list-style-type: none"> <li>• User Name</li> <li>• City</li> <li>• Email</li> <li>• Mobile Number</li> <li>• Date of Birth</li> <li>• Gender</li> <li>• Age</li> <li>• Favorite (Icon Button)</li> <li>• Edit (Icon Button)</li> <li>• Delete (Icon Button)</li> </ul>	
22	<p><b>A.</b> Write flutter code to create Alert Dialog with material theme and display it with 1 “Ok” button.</p> <p><b>A.</b> Write flutter code to create Alert Dialog with Cupertino theme and display it with 3 buttons.</p> <p><b>A.</b> Write flutter code to show DatePickerDialog on button click and set selected date.</p> <p><b>A.</b> Write flutter code to fetch json file from asset folder &amp; parse json data and display data in widget.</p> <p><b>B.</b> Write flutter code to generate model class from json.</p>	
<b>Unit : V – Accessing Rest API</b>		
23	<p><b>A.</b> Write flutter code to call rest api (using Mockapi) with <b>GET</b> Method with httpclient library and display data in List widget using future builder.</p> <p><b>A.</b> Write flutter code, pass <b>Path Variable</b> and <b>Query Variable</b> as parameter in GET Method and display single record in full screen page.</p> <p><b>B.</b> Write flutter code to call rest api and display data in listview.builder with pagination (Lazy Loading).</p>	
24	<p><b>A.</b> Write flutter code to display the country list in dropdown. On selection of “country” call state api and fill data in state list, after selecting “state” call city api and fill “city” list in dropdown.</p> <p><b>A.</b> Write flutter code to design entry screen with Name, DOB, City, Address and Email validate it &amp; save data to webserver using POST method with formurlencoded.</p> <p><b>B.</b> Write flutter code call nested api (prefill 3 dropdowns before).</p> <p><b>C.</b> Write flutter code to refresh the list with updated data without creating a new instance of list screen.</p>	
<b>Custom Apps-3: Implement Rest API using http package via JSON</b>		

<b>25</b>	<b>A.</b>	Write flutter code to implement rest APIs for a given list of screens using progress dialog and other widgets. Perform insert operation and display inserted data.
<b>26</b>	<b>A.</b>	Write flutter code to implement rest APIs for a given list of screens using alert dialog and other widgets with validations. Perform update and delete operations and refresh previous screen.