Lab	Type	Practical
1		**Variables, Data Types, Operators**
	A	1. Write a program to print your name, address, contact number & city.
	A	2. Write a program to get two numbers from user and print those two numbers.
	A	3. Write program to prompt a user to input his/her name and country name and then output will be shown as given: Hello <yourname> from country <countryname>
	A	4. Write a program to calculate the size of the area in square-feet based on Specified length and width.
	A	5. Write a program to calculate area of Square, Rectangle and Circle.
	B	6. Write a program to calculate Celsius to Fahrenheit and vice-versa using function.
	B	7. Write a program to find out Simple Interest using function. (I = PRN/100)
	B	8. Write a program to create a Simple Calculator for two numbers (Addition, Multiplication, Subtraction, Division) [Also using if…else & Switch Case]
	C	9. Write a program to Swapping without using third variable.
	C	10. Write a program to find maximum numbers from given 3 numbers using ternary operator.

2 **Class and Object, Constructors, Inheritance**

A 1. Write a program to create a class named **Candidate** with ID, Name, Age, Weight and Height as data members & also create a member functions like GetCandidateDetails() and DisplayCandidateDetails().

A 2. Write a program to create a class **Staff** having data members as Name, Department, Designation, Experience & Salary. Accept this data for 5 different staffs and display only names & salary of those staff who are HOD.

A 3. Write a pogram to Create a class **Bank_Account** with Account_No, Email, User_Name, Account_Type and Account_Balance as data members. Also create a Member function GetAccountDetails() & DisplayAccountDetails().

A 4. Write a program with following specifications:
Class Name: **Student**
Data Members: Enrollment_No, Student_Name, Semester, CPI and SPI
Get Students Details using constructor and DisplayStudentDetails() using member function.

A 5. Write a program to calculate area of a Rectangle using constructor.

A 6. Write a program for implementing single inheritance which creates one class **Account_Details** for getting account information and another class **Interest** for calculating and displaying total interest from the data inserted from account details.

B 7. Write a program to Define a class **Salary** which will contain member variable Basic, TA, DA, HRA. Write a program using Constructor with default values for DA and HRA and calculate the salary of employee.

B 8. Write a program to Define a class **Distance** have data members dist1, dist2, dist3. Initialize the two data members using constructor and store their addition in third data member using function and display addition.

C 9. Create a class **Furniture** with material ,price as data members. Create another class **Table** with Height , surface_area as data members. Write a program to implement single inheritance.

C 10. Program to implement the following multiple inheritance using interface

Interface: Gross Method- Gross_sal()	Class : Salary Data Members - HRA, TA,DA Methods - Disp_sal()	Class : Employee Data Members - Name Methods - basic_sal()

3		**Exception Handling, Interface, Abstraction, String Functions**
	A	1. Write a program to Create a divide by zero exception and handle it.
	A	2. Write a program that reads 5 numbers from user. Demonstrate concept of IndexOutOfRange Exception.
	A	3. Write a program to create an **abstract class Sum** having abstract methods SumOfTwo(int a, int b) and SumOfThree(int a, int b,int c). Create another class **Calculate** which extends the abstract class and implements the abstract methods.
	A	4. Write a program to create **interface Calculate**. In this interface we have two member functions Addition() and Subtraction(). Implements this interface in another class named Result.
	A	5. Write program showing use of common methods of String class.
	B	6. Write a program to Replace lower case characters to upper case and Vice-versa.
	B	7. Write a program to create interface named **Shape**. In this interface, we have three methods Circle(), Triangle() and Square() which calculates area of Circle, Triangle and Square respectively. Implement Shape interface.
	B	8. Write a program to accept a number from the user and throw an exception if the number is not an even number.
	C	9. Write a program to find the longest word in a string.
	C	10. Write a program to change the case of entered character.
4		**Method Overloading, Method Overriding**
	A	1. Write a program using method overloading by changing datatype of arguments to perform addition of two integer numbers and two float numbers.
	A	2. Write a program using method overloading by changing number of arguments to calculate area of square and rectangle.
	A	3. Create a class named RBI with calculateInterest() method. Create another classes HDFC, SBI, ICICI which overrides calculateInterest() method.
	A	4. Create a class Hospital with HospitalDetails() method. Create another classes Apollo, Wockhardt, Gokul_Superspeciality which overrides HospitalDetails() method.
	B	5. Write a programs to Find Area of Square, Rectangle and Circle using Method Overloading.
	C	6. Create a BankAccount class having constructor accepting initialBalance and accountHolderName. Also create Deposite() and withdraw() overloaded methods by which user can deposit/withdraw amount using different types of parameters (ex. cash, check).

5		**Collection Classes**
	A	1. Create an ArrayList for StudentName and perform following operations: a. Add() - To Add new student in list b. Remove() - To Remove Student with specified index c. RemoveRange() - To Remove student with specified range. d. Clear() - To clear all the student from the list
	A	2. Create a List for StudentName and perform following operations: a. Add() - To Add new student in list b. Remove() - To Remove Student with specified index c. RemoveRange() - To Remove student with specified range. d. Clear() - To clear all the student from the list
	B	3. Create a Stack which takes integer values and perform following operations: a. Push() - To Add new item in stack b. Pop() - To Remove item from the stack c. Peek() – To Return the top item from the stack. d. Contains() - To Checks whether an item exists in the stack or not. e. Clear() - To clear items from stack
	B	4. Create a Queue which takes integer values and perform following operations: a. Enqueue() - Adds an item into the queue. b. Dequeue() - Returns an item from the beginning of the queue and removes it from the queue. c. Peek() - Returns an first item from the queue without removing it. d. Contains() - Checks whether an item is in the queue or not e. Clear() - Removes all the items from the queue
	C	5. Create a Dictionary collection class object and preform following operations: a. Add: Adds a key-value pair. b. Remove: Removes a key-value pair by key. c. ContainsKey: Checks if a key exists in the hashtable. d. ContainsValue: Checks if a value exists in the hashtable. e. Clear: Removes all key-value pairs.
	C	6. Create a Hashtable collection class object and preform following operations: a. Add: Adds a key-value pair. b. Remove: Removes a key-value pair by key. c. ContainsKey: Checks if a key exists in the hashtable. d. ContainsValue: Checks if a value exists in the hashtable. e. Clear: Removes all key-value pairs.

6		**MVC Overview with Visual Studio**
	A	Introduction to IDE, how to create project of .net core, how to add controllers, action methods and views. How to add NuGet package references.
	A	Create a project and add Home Controller with Home, About and Contact Us Action methods with Views. Add appropriate navigation between these pages.
	B	Add Admin, User Areas and Define Appropriate Area Routes and Linking Between Areas. Add Home, About and Contact Us views inside User Area.
7		**Razor Syntax Overview**
	A	Print table of 5 using Razor.
	A	Prepare a page which displays student details and his/her semester wise SPI in table format.
	B	Prepare semester wise SPI table data in controller file and store it in ViewBag. Display the data to view page using foreach loop.
8		**Design a Static Web using Bootstrap**
	A	Create a project and add Home, About, Contact Us views. And add appropriate routing between these pages. Use bootstrap for better design. (use conventional routing)
	A	Add attribute routing in above practical along with optional parameters and apply ignore route templates functionality.
9		**Static CRUD**
	A	Prepare a static CRUD for employee table/model which displays employee details in tabular format. Create employee model class for it and use List collection class object to pass data from controller to view.
	B	Do create contact us form & display entered data below in same view page.
10		**Theme Conversion**
	A	Single page bootstrap theme conversion [Personal CV].
	B	Multiple page admin theme conversion for the project with required pages.

11		**Create Database and prepare stored procedures for Select command.**
	A	Create Database : **AddressBook** also create SelectAll and SelectByPK stored procedure for Country, State and City tables.
	B	Pass the City Name in procedure and display all the records based on city name.
	B	Pass the State Name in procedure and display all the cities belongs to the that state.
	C	Pass the Country name in procedure and display all the states with number of cities.
12		**Prepare stored procedure for Insert, Update and Delete command**
	A	Create all tables Insert, Update and Delete stored procedures for Country, State and City tables.
	B	Create an Insert, Update & Delete Stored Procedure for your own one table with minimum 6-7 columns.
13		**Implementation of Html Helpers**
	A	Student registration form using Standard html helpers. (StudentName, Branch, Semester, Birthdate, Mobile, Email, Address, City, Hobbies, Gender)
	A	Student registration form using Strongly typed html helpers. (StudentName, Branch, Semester, Birthdate, Mobile, Email, Address, City, Hobbies, Gender)
	B	Employee Registration form using Standard html helpers.
	C	Job Inquiry form using Strongly typed html helpers.
14		**Demonstration of File Upload**
	A	Design a view by which user can upload his/her resume to the server and display the uploaded resume.
	B	Design a view from user can upload their profile picture.
15		**Project Creation with Areas**
	A	Create a new asp.net core project with MVC Template and Create appropriate MVC Areas for AddressBook Project.
16		**Prepare Design Pages**
	A	Design List Page & Add/Edit Pages.
17		**Routing**
	A	Apply Attribute Routing between all the views. Use appropriate routing attributes as required.

18	**A**	**Model Creation and Data Annotations** Prepare model classes as per requirement and Implement data annotation on all the model classes.
19	**A** **B**	**Database connectivity and Implementation of Read operation** Create database connectivity and Display data (All Records) for Country List view page. Display the data for State List and City List view pages.
20	**A** **B**	**Implementation of Delete functionality** Implement Delete functionality for City, State, Country. Add prompt with 'Are you sure you want to delete record?' using Sweet alert when user want to delete any record.
21	**A**	**Apply Server-side validation** Apply server-side validations with proper message for Country, State & City.
22	**A** **B**	**Implementation of Insert functionality** Implement insert functionality for Country view page. Add dropdown for Country, State as required and implement insert functionality for State, City view pages with required validations.
23	**A**	**Implementation of Update functionality** Implement update functionality for Country, State & City view pages with appropriate message as required.
24	**A** **B**	**Login and User Registration** Implement Login functionality. Implement User Registration functionality.
25	**A** **B**	**Implementation of Excel Export functionality** Implement Search functionality for all the list pages. Add a button by which user can export table data to excel.
26	**A**	**URL Encryption-Decryption** Perform URL Encryption and Decryption using standard encryption decryption algorithm in whole project.