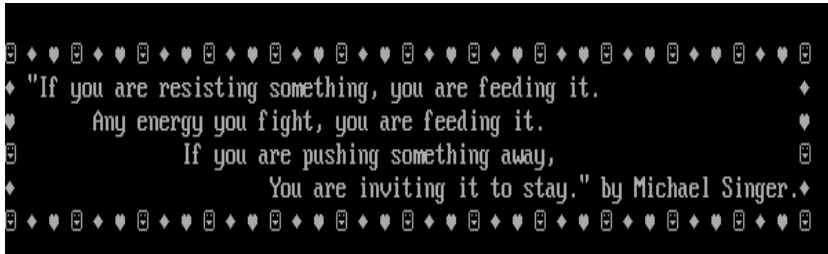





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U & P.U. PATEL DEPARTMENT OF COMPUTER ENGINEERING
ACADEMIC YEAR: 2020-21

Practical No.	Unit	Aim of Practical
1.	Introduction to 'C' language	Draw FlowChart and Write Algorithms.
2.	Constants, Variables & Data Types in 'C'	Write a program using Constants, Variables, arithmetic expressions, data types, type modifiers and type conversions.
3.	Operators and Expression in 'C'	Write program providing understanding of Relational, logical, ternary and bitwise operators.
4.	Managing Input & Output Operations	Write a program for formatted and unformatted output in C.
5.	Conditional Statements & Branching	Write programs using If, If-else, If-else-if, Nested If, break, continue, goto and switch statements.
6.	Looping	Write programs using While loop, Do-while, simple for loop, nested for loop, break and continue.
7.	Arrays	Write programs on arrays (Sorting, Merging, finding particular value, etc.)
8.	Character Arrays and Strings	Write programs for string function(strlen, strcat, strcmp, strcpy, strrev, strstr, etc.) using array.
9.	User-Defined Function in 'C'	Write a program having user defined function having various scenarios of arguments and return values
10.	Structures and Union	Write a program to define struct and union and use their members.
11.	Pointers	Write a program explaining about how pointers are useful with Arrays and Functions.
12.	File Management in 'C'	Write a program for file management functions like: Create, Open, Read, Write and Close file operations.
13.	Dynamic Memory Allocation	Create programs for dynamically allocating memory in C programs using standard library functions: malloc(), calloc(), free() and realloc().

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Set No.	Program No.	Program	Grade
1	1	<p>Write a C program that will output this passage by Michael Singer. Make sure your output looks exactly as shown here (including spacing, line breaks, punctuation, and the title and author). Use Required Escape Sequence and ASCII Value.</p>  <p>There are three shapes in the output: Smiling Face, Diamond & Heart. The ASCII Value for Smiling face  is 1.</p> <p>The ASCII Value for Diamond is  is 4.</p> <p>The ASCII Value for Heart is  is 3.</p>	
	2	<p>In a town, the percentage of men is 52. The percentage of total literacy is 48. If total percentage of literate men is 35 of the total population, write a program to find the total number of illiterate men and women if the population of the town is 80,000. Write Algorithms and Flowchart of this program.</p>	
	3	<p>A cashier has currency notes of denominations 10,50 and 100. If the amount to be withdrawn is input through the keyboard in hundreds, find the total number of currency notes of each denomination the cashier will have to give to the withdrawer.</p>	
2	1	<p>Write a program to calculate Net Salary. User has to input Basic Salary and Output should be: Enter Basic Salary: 5000 (e.g. 5000) Allowances: DA = 70% of Basic Salary HRA = 7% of Basic Salary MA = 2% of Basic Salary TA = 4% of Basic Salary</p>	

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		Deduction: PF = 12% of Basic Salary IT = any value (e.g. 500) ----- ---- Net Salary = Basic Salary + Allowances – Deduction	
	2	The distance between two cities (in km) is input through the keyboard. Write a program to convert and print its distance in meters, feet, inches and centimeters.	
3	1	Write a program to find the greatest of the three numbers entered through the keyboard using conditional operators.	
	2	Any year is input through the keyboard. Write a program to determine whether the year is a leap year or not. Use the logical operators && and .	
4	1	Write a program to convert the decimal number into octal and hexadecimal format. Hint: %o and %x	
	2.	Write a C Program to Print multiplication table of number entered by user.	
5	1	If the cost price and selling price of an item is input through the keyboard, write a program to determine whether the seller has made profit or incurred loss. Also determine how much profit he made or loss he incurred.	
	2	If the ages of Ram, Shyam and Ajay are input through the keyboard, write a program to determine the youngest of the three. (Hint: Use Nested Switch Statement)	
	3	The policy followed by a company to process customer orders is given by the following rules: a) If a customer order is less than or equal to that in stock and 'has credit' is OK, supply 'has requirements'. b) If 'has credit' is not OK do not supply. Send him intimation. c) If 'has credit' is OK but the item in stock is less than 'has ordered', supply what is in stock and Intimate him that the balance will be refunded. Write a C program to implement the company policy.	
6	1	Two numbers are entered through the keyboard. Write a program to find the value of one number raised to the power of another. (Use While loop) pg-85	
	2	Write a program to print the multiplication table of the number entered from	

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		the keyboard. The table should get displayed in the following form: $12*1=12$ $12*2=24$ Pg-103	
	3	Write a menu driven program which has following options: 1. Prime or not 2. Perfect number or not 3. Factorial of a number 4. Exit Use do...while statement so that the menu is displayed at least once. Also use Switch statement.	
	4	Write a program for a match-stick game between the computer and a user. Your Program should ensure that the computer always wins. Rules for the games are as follows: <ul style="list-style-type: none"> ● There are 21 match-sticks. ● The computer asks the player to pick 1, 2, 3, or 4 match-sticks. ● After the person picks, the computer does its picking. ● Whoever is forced to pick up the last match-stick loses the game. Use while loop, break and Continue Statements. To understand the above game in a better way visit the following link: http://atozmath.com/Games/21MatchStick.aspx	
7	1	Twenty five numbers are entered from the keyboard into an array. Write a program to find out how many of them are positive, negative, how many are even and odd.	
	2	Write a program for creating two arrays of different size and merge both arrays into one by sorting those arrays in ascending order. [Merge by sorting]	
	3	Write a Program to multiply any two 3*3 Matrices.	
8	1	Take a user input for a string and calculate the number of alphabets, digits and special characters from the given input.	

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	2	Write a program that takes a set of names of individuals and abbreviates the first, middle and other names except the last name by their first letter.	
	3	Write a C program to check if the user inputted string is palindrome or not using recursion.	
9	1	Write a C program to check if the entered number is prime or not by using types of user defined functions (i) No arguments passed and no return value (ii) No arguments passed but a return value (iii) Argument passed but no return value (iv) Argument passed and a return value	
	2	If the length of the sides of a triangle are denoted by a, b and c, then the area of triangle is given by: $s = \frac{a+b+c}{2}$ $A = \sqrt{s(s-a) \times (s-b) \times (s-c)}$	
	3	A positive integer is entered through the keyboard, write a function to find the binary equivalent of this number using recursion. pg 146	
10	1	Write a C program to create a structure of Book Detail and display the details of the book in appropriate format by passing structure as function argument.	
	2	Create a Union called library to hold accession number, title of the book ,author name, price of the book and flag indicating whether the book is issued or not.(flag = 1 if the book is issued , flag = 0 otherwise). Write a program to enter data of one book and display the data.	
	3	Write a C program for nested structure to display employee details such as, Age, Name, Address, Salary.	
11	1	Write a program to read the marks of 10 students for the subject CE141 Computer concepts	

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		<p>and Programming and computes the number of students in categories FAIL, PASS, FIRST CLASS and DISTINCTION using Pointers and Arrays.</p> <table><tr><td>Marks</td><td>Categories</td></tr><tr><td>70 or Above</td><td>DISTINCTION</td></tr><tr><td>69 to 60</td><td>FIRST CLASS</td></tr><tr><td>59 to 40</td><td>PASS</td></tr><tr><td>Below 40</td><td>FAIL</td></tr></table> <p>For example, if following marks of 10 students are entered: 34 56 78 98 12 31 67 75 91 23 Then the output should be DISTINCTION 4 FIRST CLASS 1 PASS 1 FAIL 4</p>	Marks	Categories	70 or Above	DISTINCTION	69 to 60	FIRST CLASS	59 to 40	PASS	Below 40	FAIL	
Marks	Categories												
70 or Above	DISTINCTION												
69 to 60	FIRST CLASS												
59 to 40	PASS												
Below 40	FAIL												
	2	<p>Write a program that uses an array of pointers to strings str[]. Receive two strings str1 and str2 and check if str1 is embedded in any of the strings in str[]. If str1 is found, then replace it with str2.</p> <pre>char *str[] = { "We will teach you how to...", "Move a mountain", "Level a building", "Erase the past", "Make a million", "...all through C!" };</pre> <p>For example if str1 contains "mountain" and str2 contains "car", then the second string in str should get changed to "Move a car".</p> <p>(Array of Pointers)</p>											
	3	<p>Write output for the following programs:</p> <div><p>1. (Pointers to Functions)</p><pre>#include<stdio.h> void display(); int main() { void (*func_ptr)();</pre></div>											

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		<pre> func_ptr=display; printf("Address of functions display is %u\n",func_ptr); (*func_ptr()); return 0; } void display() { puts("By helping others, we help ourselves!!"); } </pre>	
		<p>2. (Functions Returning Pointers)</p> <pre> char *copy (char*,char *); int main() { char *str; char source[] = "Kindness"; char target[10]; str=copy(target,source); printf("%s\n",str); return 0; } char *copy(char *t,char *s) { char * r; r = t; while(*s!="\0") { *t=*s; t++; s++; } *t="\0"; return(r); } </pre>	
12	1	<p>Write a program to read a text file 'Demo.txt' and print each word of that file in reverse order.</p> <p>For example:</p>	

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		Input: HELLO Output: OLLEH	
	2	Write a program to print last n characters of a file. Use the function fopen() , fclose() , ftell() , fseek() and rewind() .	
	3	Write a program to create a hospital.dat file containing the following details of hospital: Hospital Name, Hospital Address, Hospital Age, Hospital Bloodtype. A hospital keeps a file of blood donors in which each record has the format: Name: 20 columns Address: 20 columns Age: 2 columns Blood Type: 1 Column (Type 1,2,3 or 4) Write a program to read the file and print a list of all blood donors whose age is below 25 and blood is type 2.	
13	1	Write a program to read and print the student details using structure and Dynamic Memory Allocation.	
	2	Take the elements of the array using user input, read them and print the sum of all elements along with inputted array elements using Dynamic Memory Allocation.	
	3	Write a program using a character string in a block of memory space created by calloc () and then modify the same to store a larger string using realloc () function. (Dynamic Array).	