Faculty of Technology and Engineering

Chandubhai S. Patel Institute of Technology [CSPIT]

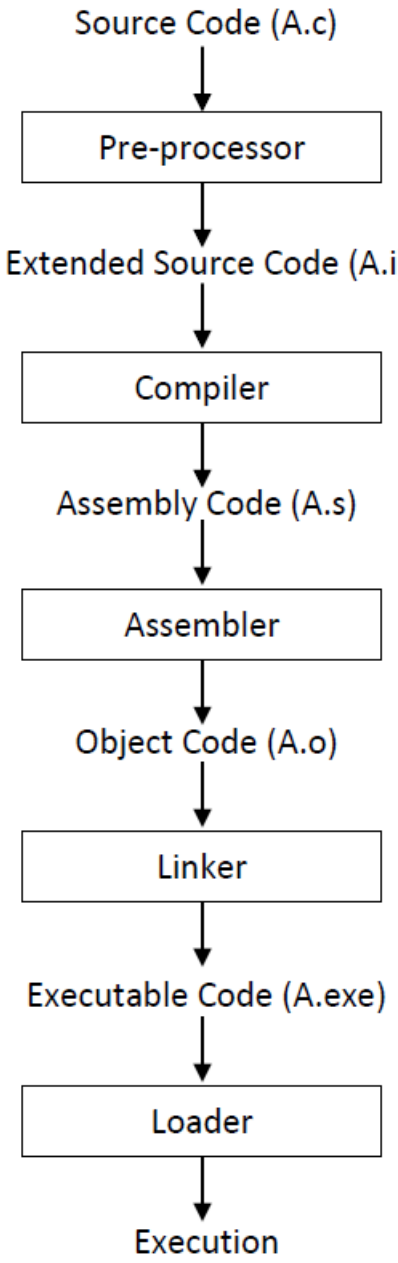
U & P U. Patel Department of Computer Engineering

Date : 20/07/2023

Practical List

Academic Year	:	2023-24	Semester	:	1
Course code	:	CE143	Course name	:	Computer Concepts and Programming

Set No.	Program No.	Aim	CO
1	1.1	Write a simple Program to print “Hello World” using notepad. Students should install Ubuntu 18.04.6 LTS app from Windows store and execute the code in the Ubuntu Linux Operating system. Code should also be executed in Turbo C and Code::Blocks Platform in Windows. Suppose the name of the program is A.c	1



Process of Compiling and executing C Program

Steps for compiling and executing programs in Ubuntu Linux :

- Environment
  - ✓ Linux

• Install Ubuntu (Linux) in windows

- ✓ https://www.youtube.com/watch?v=xzgwDbe7foQ

• Online Linux use

- ✓ https://bellard.org/jslinux/vm.html?url=buildroot-x86.cfg

• Install package (if not available)

- ✓ gcc, cpp, as

		For e.g. command to install gcc package **>> sudo apt install gcc** • Make .c file ✓ Syntax **>> vi <filename>.c** • Get expanded c program (o/p of preprocessor) ✓ Syntax **>> cpp <filename>.c > <filename>.i** • Get assembly code (o/p of compiler) ✓ Syntax **>> gcc -S <filename>.i** • Get object code (o/p of assembler) ✓ Syntax **>> as -o <filename>.o <filename>.s** • Get executable code ✓ Syntax **>> gcc <filename>.o -o <filename>.exe** **WORK SUBMISSION** • A.c, A.i, A.s, A.o, A.exe files • Document of your observation and steps to get .c file to .exe file	
1	1. 2	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.** ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♦ "If you are resisting something, you are feeding it. ♦ ♥ Any energy you fight, you are feeding it. ♥ ♦ If you are pushing something away, ♦ ♦ You are inviting it to stay." by Michael Singer.♦ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦ ♥ ♦	1,2

Note:
There are three shapes in the output: Smiling Face, Diamond & Heart.
The ASCII Value for Smiling face is 1.

The ASCII Value for Diamond is is 4.

The ASCII Value for Heart is is 3.
Also draw flowchart and write algorithm.
Try this example on Turbo C or Code blocks only.

Question:

1. Have you learnt about ASCII values for different symbols other than smile, diamond and heart? If yes, then mention any 5 ASCII symbols and their values in tabular format.

Sr. No.	Symbol	ASCII Value
1		
2		
3		
4		
5		

2.	2.1	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.	1,2,6

Expected Outcome:
Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.
Fill below mentioned table as per your output.

Sr. No.	Get Outcome	Value
1	Total Population	
2	Number of Literate (Men + Women)	
3	Number of Men	
4	Number of Literate Men	
5	Number of illiterate Men	
6.	Number of Women	
7.	Number of Literate Women	
8.	Number of illiterate Women	

Questions:

<table>
<tr><td></td><td></td><td>1. Has this scenario helped you learn about integer and float datatype? If yes, then mention the requirements of using integer and float data types.</td><td></td></tr>
<tr><td></td><td>2.2</td><td>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
Deduction:
PF = 12% of Basic Salary
IT = any value (e.g. 500)
Gross Salary = Basic Salary + Allowances
Net Salary = Gross Salary – Deduction
Expected Outcome:
Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.
Fill up the data mentioned in below given table as per the output received.
<table>
<tr><td>Sr. No.</td><td>Input/Outputs</td><td>Amount</td></tr>
<tr><td>1</td><td>Enter your Basic Salary</td><td></td></tr>
<tr><td>2</td><td>DA of Basic Salary</td><td></td></tr>
<tr><td>3</td><td>HRA of Basic Salary</td><td></td></tr>
<tr><td>4.</td><td>MA of Basic Salary</td><td></td></tr>
<tr><td>5.</td><td>TA of Basic Salary</td><td></td></tr>
<tr><td>6.</td><td>PF of Basic Salary</td><td></td></tr>
<tr><td>7.</td><td>Gross Salary</td><td></td></tr>
<tr><td>8.</td><td>Net Salary</td><td></td></tr>
</table>
Questions:
1. Have you learned about various data types that can be suitably used for this problem? Do mention which data types can be used and why? Also mention the difference between the outputs.</td><td>1,2,6</td></tr>
<tr><td>3</td><td>3.1</td><td>Write a program that takes the length of the pendulum as input and then calculate the time period of the pendulum. Provided that, $T=2\pi\sqrt{L/G}$. Define the value of π as 3.14 and take L as the length of the pendulum and G as the acceleration of gravity either in m/s or as input from the keyboard. Display the time period rounded to 2 decimal places.
Hint:
Use Math.h header file, use #define for specifying the value of π
Expected Outcome:
Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.</td><td>1,2,6</td></tr>
</table>

Fill up the output as per the inputs mentioned in below given table as per the output received in console.

Sr. No.	Input		Output
	Length	Gravity	Time Calculated(seconds)
1.	50 m	9.8 m/s^2	
2.	50 m	0 m/s^2	
3.	50 m	0.9993 g	
4.	50 m	-1 g	

Questions:

1. Have you learned about, how math function is useful for calculating square root? Which datatype is supported by all math functions? Also mention any 5 math functions with their purpose.

Sr. No.	Math function	Description
1.		
2.		
3.		
4.		
5.		

3.2 Let us understand the working of Pre-increment, Post-increment, Pre-decrement and Post-decrement 1,2,6

a. Consider a scenario where, Boys are playing in the park and collecting and removing the yellow balls in/from the bucket based on teacher's instruction. Let's say there are already 10 Yellow balls present in a bucket. Following is the sequence of the instructions given by the teacher for adding/removing the balls.

.Rajiv: ++ Yellow
.Preet: --Yellow
.Raj: Yellow++
.Ritul: Yellow--

Expected Outcome:

Fill up the data mentioned in below given table as per the output received.

Sr. No.	Instructions	Yellow
1.	Count before execution	
2.	Count after execution	

b. Consider another scenario where boys and girls both are asked to add/remove Yellow and Pink balls from the bucket respectively. Currently there are 10 Yellow balls in the bucket and 20 Pink balls.

Teacher has given the sequence of instructions as below for adding/removing the balls.
Calculate = ++Yellow + Yellow++ + --Yellow + ++Pink - --Pink - --Pink
Get the count of Yellow and Pink balls after evaluating above given scenario.

Expected Outcome:
Fill up the data mentioned in below given table as per the output received.

Sr. No.	Instructions	Yellow	Pink
1.	Count before execution		
2.	Count after execution		

Also get the count of calculate and explain how it is calculated in stepwise manner. (hint: left to right, as per memory)

Questions:
Have you understood the working of Pre-increment, Post-increment, Pre-decrement and Post-decrement?
Rubrics: Output should be as mentioned in the expected outcome, if it is imperfect then submission marks are proportional.

3.3 Write a C program to swap two numbers with third variable and without using third variable. (use two variables for collecting value from user) (Hint: Use arithmetic operators) 1,2

Expected Outcome:
Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.
Fill up the output as per the output received in console.

Sr. No.	Instruction	Number1	Number2
1.	Before Swapping		
2.	After Swapping		

Questions:
1. Have you learned about, how we can use arithmetic operators for swapping the numbers?

<table>
<tr>
<td>4</td>
<td>4.1</td>
<td>
a. Write something about your characteristics not more than 50 words using gets function and print out the same using puts function.

Expected Outcome:
Draw flowchart, write algorithm and write program for given scenario. Also attach the screenshot of output.
Questions:
What is the significance of using gets and puts? Are they acting as replacement of any function? How?

b. Write a program to convert the decimal number into octal and hexadecimal format. Print hexadecimal and octal values for given inputs in expected outcomes.
Hint: Use %o and %x

Expected Outcome:
Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.
Fill up the output as per the inputs mentioned in below given table as per the output received in console.
<table>
<tr><td>Sr. No.</td><td>Inputs</td><td>Octal</td><td>Hexadecimal</td></tr>
<tr><td>1.</td><td>Your Roll No</td><td></td><td></td></tr>
<tr><td>2.</td><td>143</td><td></td><td></td></tr>
<tr><td>3.</td><td>0</td><td></td><td></td></tr>
<tr><td>4.</td><td>1</td><td></td><td></td></tr>
<tr><td>5.</td><td>-1</td><td></td><td></td></tr>
</table>
</td>
<td>1,2</td>
</tr>
</table>

5	5.1	While purchasing certain items, a discount of 10% is offered if the quantity purchased is more than 1000.If quantity and price per item are input through the keyboard, write a program to calculate the total expenses. Use **Simple If** statement. **Expected Output:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output. Input values in the console as per the table given below and write the results in the table, based on received output. **Sr. No.** | **Inputs** | **Output** **1** | Quantity : 5, price per item: 2 | 10 **2** | Quantity : 3, price per item: 6.5 | 19.5	1,2

	5.2	Three or more **points** are said to be **collinear** if they lie on a single straight line. If three points (x1,y1) , (x2, y2) and (x3,y3) are entered through the keyboard find if these points are collinear or not. (**Hint:** Calculate slope of line between each pair of points. For example slope between first point and second point is s1=fabs(x2-x1)/fabs(y2-y1). If all the three slopes are equal they fall on straight line). Use fabs() function of math.h header file. Use **If..Else statement.** **Expected Output:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output. Input values in the console as per the table given below and write the results in the table, based on received output. **Sr. No.** | **Inputs** | **Output** **1** | (1, 3) , (6, 4) and (3, 6) | Non-collinear Points **2** | (1, 2) , (2, 4) and (3, 6) | Collinear Points	1,2

	5.3	Write a program to find whether the given Year is a Leap Year or not using Else…If Ladder. **Expected Output:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output. Input values in the console as per the table given below and write the results in the table, based on received output. **Sr. No.** | **Inputs** | **Output** **1.** | 1900 | 1900 is not a Leap Year **2.** | 2020 | 2020 is a Leap Year **3.** | 2000 | 2000 is a Leap Year	1,2

	5.4	Write a C program to find all roots of a Quadratic equation using nested switch case. Take three user inputs from keyboard for finding the discriminant ($b^2 – 4*a*c$). Use the concept of nested switch case for finding the roots of equation. Get the outputs for roots till 2 decimal points only. Hint: Discriminant > 0 root1 = (-b + sqrt(discriminant)) / (2*a) root2 = (-b - sqrt(discriminant)) / (2*a) **Discriminant < 0** root1 = root2 = -b / (2*a) imaginary = sqrt (-discriminant) / (2*a) (eg. Print it as: i20.3, i.e. i followed by value) **Discriminant = 0** root1 = root2 = -b / (2*a) **Expected Output:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output. Input values in the console as per the table given below and write the results in the table, based on received output.	1,2,6

Sr. No.	Inputs			Root1	Root2	Imaginary
	a	b	c			
1.	1	2	3			
2.	3	-7	-5			
3.	9	12	4			

Questions:

1. Have you learned about how to use normal switch case and nested switch case?
2. Is default case necessary for every switch case?
3. What if break statement is not mentioned between two consecutive cases?

	5.5	Write a program to input a character using getchar() and print the character using putchar() and check the character category. Also convert uppercase alphabet to lower case and vice versa. (Use Character Test Functions : isalnum(), isalpha(), isdigit(), islower(), isprint(), ispunct(), isspace(), isupper()) and (toupper() & tolower()) of <ctype.h> header file. **Expected Output:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output. Input values in the console as per the table given below and write the results in the table, based on received output.	1,2,6

Sr. No	Input a Character	Output
1	10	10 is a digit
2.	a	a is lower case character , Upper Case Character is A
3.	D	D is Upper case character , Lower Case Character is d.

		4.	"	" is a punctuation mark
		5.	\n	\n is non printable character.
		6.	(Enter white space as input)	is a white space.
6	6.1	Write a menu driven program which has following options: 1. Prime or not (Use for Loop) 2. Armstrong number or not (Use while loop) 3. Perfect number or not (Use do..while loop) 4. Exit Use **do...while statement** so that the menu is displayed at least once. Also use **Switch statement.** 1. **Prime Number**: A prime number is a natural number greater than 1 that has only two factors: 1 and the number itself. A composite number is a natural number or a positive integer which has more than two factors. For example, 15 has factors 1, 3, 5 and 15. 2. **Armstrong Number:** An "Armstrong number" is an n-digit number that is equal to the sum of the n^{th} powers of its individual digits. • For example, 153 is an Armstrong number because it has 3 digits and $1^3+5^3+3^3=153$. • Similarly, 1634 is an Armstrong number because it has 4 digits and $1^4+6^4+3^4+4^4=1634$. 3. **Perfect Number:** Perfect Number is a positive integer that is equal to the sum of its proper divisors. The smallest perfect number is 6, which is the sum of 1, 2, and 3. Other perfect numbers are 28, 496, and 8128. **Expected Outcome:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output. Mention at least 3 different inputs that you have experimented and outputs received.	1,2,6
	6.2	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: • 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 **Expected Outcome:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output. Write the sequence of sticks inputted by you and computer one after another. **Sr. No.** | **Entered Number by User** | **Entered Number by Computer** | **Sticks left** **1.**	1,2,6

		2.			
		…			
		N.			

Questions:

1. What is the significance of using break and continue statement?

	6.3	Write a program to print the following patterns using **Nested Loop.**		1,2,6

		(i)Use Nested for loop	(ii)Use Nested while loop	(iii) Use Nested do..while loop	
		1 1 0 1 0 1 1 0 1 0 1 0 1 0 1	1 1 2 1 2 3 1 2 3 4 1 2 3 4 5	A A B A A B C B A A B C D C B A	

7	7.1	Twenty-five numbers are entered from the keyboard into an array. Write a C program to find out how many numbers of them are positive, negative, and how many are even and odd? **Expected Outcome:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output. Enter the counts of positive, negative, even and odd numbers in the below given table as per the output received.		1,2,3

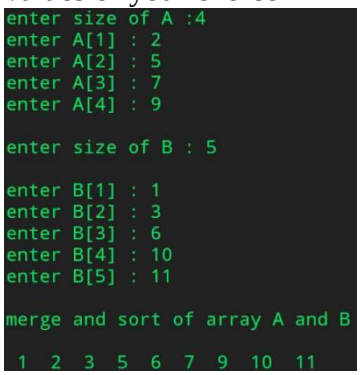
Sr. No.	**Parameter**	**Counts**
1.	Positive Numbers:	
2.	Negative Numbers:	
3.	Even Numbers:	
4.	Odd Numbers:	

Questions:

1. Is it necessary to initialize a variable with zero everytime? If yes, then why? If No, then when is it necessary to initialize the number with zero and why?

	7.2	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**] **Expected Outcome:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.	1,2,3

Following screenshot showcases the expected outcome, you can enter the input values of your choice



7.3 Write a Program to multiply any two 3*3 Matrices. 1,2,3

Test Data:

Input the rows and columns of first matrix: 3 3

Input the rows and columns of second matrix: 3 3

Expected Input and Output:

Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.

Input for first matrix:

	j[0]	**j[1]**	**j[2]**
i[0]	2	5	8
i[1]	3	6	9
i[2]	4	7	10

Input for Second Matrix:

	j[0]	**j[1]**	**j[2]**
i[0]	2	3	4
i[1]	9	7	6
i[2]	1	5	2

Fill up the matrix multiplication data in the below given table as per the output received:

	j[0]	**j[1]**	**j[2]**
i[0]			
i[1]			
i[2]			

Questions:

1. State the advantages of using Array Indexes. When is it suitable to take array index?

8 8.1 Write a program to do the following without using Library Function of String.h header file. 1,2,3,6

i. Length of a string
ii. Reverse string
iii. Compare two strings
iv. Copy one string into another string
v. Concatenate two strings

		Use Switch case for various option entered.	
	8.2	Let us assume, teacher is supposed to allot seats based on the student's names. You are requested to help teacher by creating a C program, for collecting the names of 5 students and sort them in alphabetical order. **Expected Outcome:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output. Enter the inputs entered by you for 5 names, and give the output how they are sorted. **Questions:** 1. Which string functions have you learned from this program? Explain any 5 string functions in below given table.	1,2, 3,6

Sr. No.	Input of names	Sorted Output as per output
1.		
2.		
3.		
4.		
5.		

Sr. No.	String Functions Syntax	Purpose
1.		
2.		
3.		
4.		
5.		

<table>
<tr>
<td>9</td>
<td>9.1</td>
<td>Write a C program to check if the entered number is factorial 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
Expected Outcome:
Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.
Enter the details into the table based on the inputs entered by you and tick mark the column, whether the inputted value is prime or non-prime:
<table>
<tr><th>Sr. No.</th><th>User Defined Functions</th><th>Input</th><th>Prime</th><th>Non-Prime</th></tr>
<tr><td>1.</td><td>No arguments passed and no return value</td><td></td><td></td><td></td></tr>
<tr><td>2.</td><td>No arguments passed but a return value</td><td></td><td></td><td></td></tr>
<tr><td>3.</td><td>Argument passed but no return value</td><td></td><td></td><td></td></tr>
<tr><td>4.</td><td>Argument passed and a return value</td><td></td><td></td><td></td></tr>
</table>
Questions:
1. You might be clear now, how user defined functions are created in different ways. Explain them.</td>
<td>1,2,4</td>
</tr>
<tr>
<td></td>
<td>9.2</td>
<td>Verify the triangle, if the length of the sides of a triangle are denoted by a, b and c, then the area of triangle is given by:
$$s = \frac{a+b+c}{2}$$
$$A = \sqrt{s(s-a)\times(s-b)\times(s-c)}$$
© www.petervis.com
Use nested function.
Collect the values for a, b and c from user for identifying whether it forms Triangle or not.
Expected Outcome:
Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.
Enter the inputs for verifying triangle and mention the results in the below mentioned table format. Tick mark whether based on input, triangle is formed or not.
<table>
<tr><th>Sr. No.</th><th>Input</th><th>Forming Triangle</th><th>Not a Triangle</th></tr>
</table></td>
<td>1,2,4</td>
</tr>
</table>

			a	**b**	**c**		
		1.					
		2.					
		3.					

Questions:

1. Explain the concept of nested functions in C.

	9.3	A positive integer is entered through the keyboard, write a function to find the binary equivalent of this number using recursion. **Expected Outcome:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output. Enter the inputs for converting the number into binary form, try it for three different inputs and fill the below given table:	1,2,4

Sr. No.	**Input**	**Binary**
1.		
2.		
3.		

Questions:

1. Mention the advantages of using recursion in a program.

10	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 a function argument. Book Detail must contain following information: Book Title, Author name and Amount of book in float. **Expected Outcome:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output. Enter the inputs for converting the number into binary form, try it for three different inputs and fill the below given table:	1,2,3

Sr. No.	**Book Title**	**Author Name**	**Amount of book**
1.			
2.			
3.			

Questions:

1. Can we declare function inside structure of C Programming? Explain Why?

	10.2	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	1,2,3,6

= 1 if the book is issued, flag = 0 otherwise). Write a program to enter data of one book and display the data.

Expected Outcome:

Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.

Enter the inputs for collecting the details for library books. Here, if user inputs flag=1, then book is issued else book is not issued.

Sr. No.	Accession Number	Title of Book	Author	Price	Flag	Output
1.						**Book Issued**
2.						**Book Not Issued**

Questions:

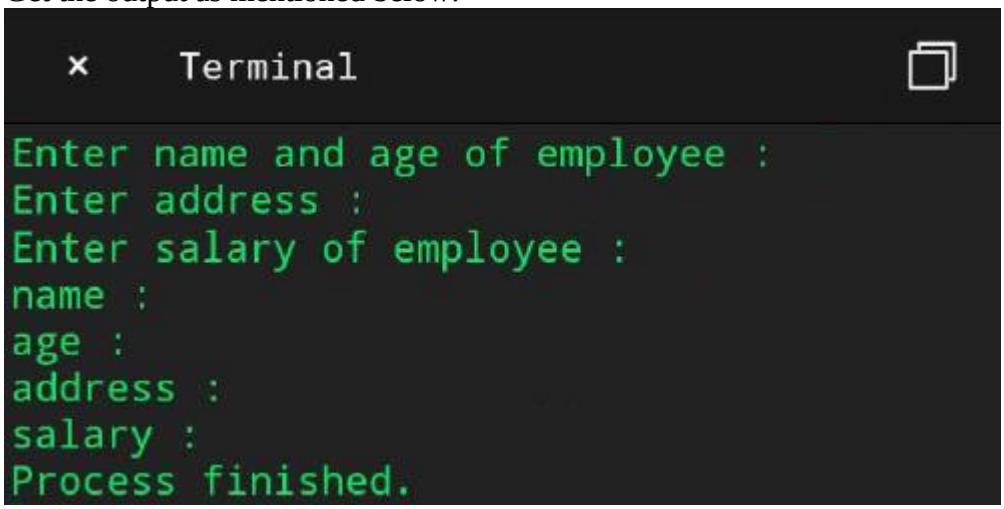
1. Explain the major difference between structure and union in detail.

10.3 Write a C program for collecting and displaying employee details such as, Age, Name, Address and Salary by using nested structure. 1,2, 3,6

Expected Outcome:

Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.

Get the output as mentioned below:



Questions:

1. Explain how nested structure works in C programming.

11 11.1 Write a program to read the marks of 10 students for the subject CE143 Computer concepts and Programming and computes the number of students in categories FAIL, PASS, FIRST CLASS and DISTINCTION using Pointers and Arrays. 1,2, 3,5

Marks	Categories
70 or above	DISTINCTION
69 to 60	FIRST CLASS

59 to 40	PASS
Below 40	FAIL

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

Expected Outcome:

Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.

You are requested to gain all categories of results, so input the values accordingly, also write the counts of all the categories.

Sr. No.	Input	Distinction	First Class	Pass	Fail
1.					
2.					
...					
10.					
	Counts				

Questions:

1. Explain the importance of using pointers?

11.2 Write output for the following programs: 1,2,5

1. (Pointers to Functions)

```
#include<stdio.h>
void display();
int main()
{
        void (*func_ptr)();
        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 overselves!!");
}
```

2. (Functions Returning Pointers)

```
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); } ```	
12	12.1	Write a program that takes contents of a file and copy them into another file and print it on the screen. Use **feof ()** functions to detect the end of file and **ferror()** function to detect if there is an error in opening the file. **Expected Outcome:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.	1,2,3
	12.2	Write a program to create a file named ALPHABETS which consists of all 26 letters ABC…XYZ and prints the contents of the file in reverse order ZYX….CBA on the screen. Use the function **ftell(), fseek() and rewind().** **Expected Outcome:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.	1,2,3
	12.3	Two files Data1.txt and Data2.txt contains list of integers. Write a program to produce file Data3.txt which holds as merged list of these two lists. Use **command line argument** to specify the file name. **Expected Outcome:** Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output. Enter the data in a file from console and attach the screenshots of Data1.txt, Data2.txt and Data3.txt files. Also add the screenshot of console. **Questions:** 1. Explain the difference between argc and argv along with their significance.	1,2,3

<table>
<tr>
<td>13</td>
<td>13.1</td>
<td>Write a program to enter N numbers into array and find average. Enter the size of the array through keyboard. (Dynamic Array). Use malloc () to allocate memory and use free() to free the memory after the use.
Expected Outcome:
Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.
Enter the details in below given table as per the requirement:
<table>
<tr><th>Sr. No.</th><th>Instruction</th><th>Output</th></tr>
<tr><td colspan="2">Enter the size of Array</td><td>N (To be entered by user)</td></tr>
<tr><td>1.</td><td></td><td>To be entered by user</td></tr>
<tr><td>2.</td><td></td><td>To be entered by user</td></tr>
<tr><td>…</td><td></td><td>To be entered by user</td></tr>
<tr><td>N.</td><td></td><td>To be entered by user</td></tr>
<tr><td colspan="2">Average of entered values</td><td></td></tr>
</table>
</td>
<td>1,2, 3,5, 6</td>
</tr>
<tr>
<td></td>
<td>13.2</td>
<td>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).
Expected Outcome:
Draw flowchart, write algorithm and program for given scenario. Also attach screenshot of output.
Enter the details in below given table as per the requirement:
<table>
<tr><th>Sr. No.</th><th>Instruction</th><th>Output</th></tr>
<tr><td>1.</td><td>String to be entered</td><td></td></tr>
<tr><td>2.</td><td>String received after reallocation of memory</td><td></td></tr>
</table>
Questions:

Mention advantage of using realloc() function.

</td>
<td>1,2, 3,5</td>
</tr>
</table>