

Answer the following programs By using C++ DEV programs and copy your answers to flash be careful write program by yourself don't copy from anywhere and use comments you must deliver programs on 30/11/2023

شرح المشروع الموحد بشكل مفصل

اول ما يتم تشغيله يفتح نافذه

فيها اسم القسم مع المجموعه وفيه الخيارات

1.الجانب النظري

2.الجانب العملي

3 خروج

عند اختيار الجانب النظري

بعدين اذا اختار الطالب رقم واحد من النافذه السابقه اي الجانب النظري يفتح نافذه اخرى
فيها خيارات

1.Sequence control Structure programs

2. Branching (selection) control structure

3. Repetition Control

4 .Exit

يتم ترتيب كل التكاليف الخاصه بالدكتور بلال كبرامج حسب الخيارات السابقة

عند اختيار الجانب العملي

بعدين اذا اختار الطالب رقم واحد من النافذه السابقه اي الجانب العملي يفتح نافذه اخرى
فيها خيارات

1.Assignments

2. Final Projects

3 .Exit

اذا اختار الطالب رقم واحد من النافذه السابقه يفتح نافذه اخرى فيها خيارات

1-Lab1

2-Lab2

And so on

وإذا تم اختيار المشروع النهائي يتم فتح خيارات للكافة لبرامج المرفقه في هذا الملف

1-Write a program in C++ to divide two numbers and print on the screen?

Sample Output:

Divide two numbers and print:

The quotient of 30 and 10 is 3

2-Write a program in C++ to display ASCII value of character?

Sample output:

Enter any Character :: C

The ASCII Value of Character [C] is :: 67

3. Write a program in C++ to Find Size of int, float, double and char in Your program?

Sample Output:

size of char : 1 Byte

size of int : 4 Bytes

size of float : 4 Bytes

size of int double : 8 Bytes

4. Write a program in C++ to swap tow numbers?

Sample Output:

Before swapping :

a = 5 , b = 4

After swapping :

a = 4 , b = 5

5. Write a program in C++ to print the following pattern Sample Output:

xxxxx

```
x  x  x  x
x      x  x
x  xxxxxxxx xxxxxxxx
x  x  x  x
x  x  x  x
xxxxx
```

6. Write a program in C++ to print the area and perimeter of a rectangle.

Sample Output:

Print the area and perimeter of a rectangle:

Input the width of the rectangle: 8.5

Input the height of the rectangle: 5.6

The area of the rectangle is: 47.6

The perimeter of the rectangle is: 28.2

7. Write a language program in C++ which accepts the user's first and last name and print them in reverse order with a space between them?

Sample Output:

Print the name in reverse where last name comes first:

Input First Name: Alexandra

Input Last Name: Abramov

Name in reverse is: Abramov Alexandra

8. Write a program in C++ to display the operation of pre and post increment and decrement?

Sample Output:

Display the operation of pre and post increment and decrement :

The number is : 57

After post increment by 1 the number is : 58

After pre increment by 1 the number is : 59

After increasing by 1 the number is : 60

After post decrement by 1 the number is : 59

After pre decrement by 1 the number is : 58

After decreasing by 1 the number is : 57

9-Write a program in C++ that converts kilometers per hour to miles per hour?

Sample Output:

Convert kilometers per hour to miles per hour :

Input the distance in kilometer : 25

The 25 Km./hr. means 15.5343 Miles/hr.

10-Write a program in C++ to compute the total and average of four numbers?

Sample Output:

Compute the total and average of four numbers :

Input 1st two numbers (separated by space) : 25 20

Input last two numbers (separated by space) : 15 25

The total of four numbers is : 85

The average of four numbers is : 21.25

11-Write a C++ program that prompts the user to input three integer values and find the greatest value of the three values?

12- Write a C++ program to find prime numbers ?

13- Write a program in C++ that takes a number as input and prints its multiplication table up to 10?

Sample Output:

Print the multiplication table of a number up to 10:

Input a number: 5

5 x 1 = 5

5 x 2 = 10

5 x 3 = 15

5 x 4 = 20

5 x 5 = 25

5 x 6 = 30

**5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50**

14- Write a program in C++ for random number generator?

```
/*Sample OUTPUT
The ten random number are
3
0
8
9
6
4
8
8
8
0
```

15. C++ program for Calculation of the surface and the volume of a cone

- Write a program that calculates the volume of a solid cone. The formula is:
$$\text{volume} = (\text{PI} \times \text{radius}^2 \times \text{height})/3$$
 - Read in the values for the parameters height and radius(as floating point numbers).
 - Then the program should calculate the volume considering the following restriction :radius and height must be greater than 0
 - If the user types in a correct value for one of the variables ,the program should print out an error message and quit . Otherwise ,it displays the result.
-

**16. Write a program that calculates the real solution of the quadratic equation
 $ax^2+bx+c=0$**

- Read in the values for the parameters a,b,c(type float).
- Then the program should calculate the solution considering the following circumstances:
 - $a=0 \text{ and } b=0 \Rightarrow$ Not a valid equation
 - $a=0 \text{ and } b \neq 0 \Rightarrow x=-c/b$
 - $b^2 - 4ac < 0 \Rightarrow$ Not a Real Solution
 - $b^2 - 4ac > 0 \Rightarrow x_1 = (-b + \sqrt{b^2 - 4ac})/2a, x_2 = (-b - \sqrt{b^2 - 4ac})/2a$
 - Hint: The C++ function for \sqrt{x} is `sqrt(x)`.
 - To use this function you need to include `#include<math.h>`

17. Write a C++ program to convert a string into upper-case or lower-case?

18. Write a C++ program to concatenate strings ?

19. Write a C++ program to print half Pyramid of numbers?

```
/*
```

OUTPUT:

Enter the number of rows: 5

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

```
*/
```

20. Write a C++ program to print Diamond of Stars?

* /

21. write a C++ Program to print Pascal's triangle?

```
/*
OUTPUT
Enter number of rows: 6
      1
      1   1
      1   2   1
      1   3   3   1
      1   4   6   4   1
      1   5   10  10  5
```

* /

22. write a C++ Program to print pyramid of stars in reverse order?

```
/*
Enter number of rows: 6
* * * * * * * *
* * * * * * *
* * * * *
* *
*/
*/
```

23. write a C++ Program to Print Alphabet pattern (Alphabet Triangle)?

```
/*
Enter uppercase character you want in triangle at last row: F
A
B B
C C C
D D D D
E E E E E
F F F F F F */
```

24. write a C++ Program to print fibonacci series in C++ programming (up to nth term, and up to a certain number).

The first two terms of the Fibonacci sequence is 0 followed by 1.

The Fibonacci sequence: 0, 1, 1, 2, 3, 5, 8, 13, 21

25. write a C++ Program to Remove all Characters in a String Except Alphabets.?

26. write a C++ Program to Find the Length of a String?

27. write a C++ Program to Find the Number of Vowels, Consonants, Digits and White Spaces in a String?

28-Write a program to check the input symbol if its character or digit? character is 'A' to 'Z' or 'a' to 'z' and digit is '0' to '9'?

29-Program Take Hours, Minutes, Seconds And Print It In 24 Hours & 12 Hours Format?

30-C++ code to print right triangle pattern using for loop?

31- A numeric integer grade is between 20 and 66. Using integer division or otherwise obtain a int value that is 2, 3, 4, 5, or 6 from the numeric grade. Write code using a switch statement using this number in the selector expression that assigns letter grades based on this 10 point scheme:

if the numeric_grade is not less than 60, the letter_grade is an A,
if the numeric_grade is not less than 50, the letter_grade is a B,
if the numeric_grade is not less than 40, the letter_grade is C,
if the numeric_grade is not less than 30, the letter_grade is D,
otherwise the letter_grade is F.

32- Write a program that prompts the user to enter the number of students and each student's score, then finally displays the highest score by using Array assume number of students 30.

33-Write a test program that reads a C-string and displays the number of letters in the string. Here is a sample run of the program:

Sample Output:

Enter a string: **2010 is coming.**

The number of letters in 2010 is coming is 8

34- When the square root of $b^2 - 4ac$ is less than zero, how do you display the message "square root of a negative value is not defined" or display "no square root" ?

35- Write a program in C++ to Enter 10 values in one dimensional array ,print values then make cascading sort to them and print them?

36- Write a program in C++ to Enter 7 values in one dimensional array ,print values then make reverse to the element?

37- Write a program in C++ to Enter values in two dimensional array 3x4 ,print values then make reverse to the element?

38-A company needs a program to calculate and display the appropriate raise amount for employees at the end of the year. The company has three departments (A, B and C):

- Employees in department A are receiving a 2.5% raise if their years of experience is more than 5 years. Otherwise, they will get 2% raise.**
- Employees in department B are receiving a 2% raise if they attended at least five workshops in the past year. Otherwise, they will get 1.5% raise.**
- Employees in department C are receiving a 1% raise.**

Sample output 1:

```
- Enter department (A, B or C): A
- Enter employee salary: 12000
    -Enter the years of experience: 6
The calculated raise is: 300 SR
Your new salary: 12300 SR
```

Done By Eng:Enass Aldahbali.

Good Luck