OOPS c++

lab

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BTECH(CSE)

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| S no. | EXPERIMENT | DATE | PAGE | REMARKS |
| 1. | Write a C program to return number of characters which are printed by printf() | 30/07/2021 |  |  |
| 2. | Write a C program to return number of characters which are printed by scanf. | 30/07/2021 |  |  |
| 3. | Write a C program to pass the command lines. | 30/07/2021 |  |  |
| 4. | Write a C program to open a file. | 30/07/2021 |  |  |
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| --- | --- | --- | --- | --- |
| 6. | Write a C program code to accept a string $str$ from the user to enter as a command line argument and create a file $my\\_file$ to write the string $str$ in $my\\_file$. | 05/08/2021 |  |  |
| 7. | Write a C program code with login system. The main window shall contain two options, one option for register and another option for login. | 05/08/2021 |  |  |

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| --- | --- | --- | --- | --- |
| **8.** | Write a c++ Program to swap two variables   1. using a third variable 2. without using a third variable c. In a single statement | 13/08/21 |  |  |
| **9.** | Write a c++ Program using 1st using switch case for addtion , Subtraction  ,Multiplication , division , and Modulas ? | 13/08/21 |  |  |

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| --- | --- | --- | --- | --- |
| **10.** | Write a C++ Program to display Names, Roll No., and grades of 3 studentswho have appeared in the examination. Declare the class of name, Roll No. andgrade. Create an  array of class objects. Read and display the contents of thearray. | 13/08/21 |  |  |
| **11.** | Write a C++ program to sort a list of numbers in ascending order. | 13/08/21 |  |  |
| **12.** | Write a C++ program to generate all the prime numbers between 1 and n, wheren is a value supplied by the user. | 13/08/21 |  |  |

1.

AIM- Write a C program to return number of characters which are printed by printf().

CODE-

#include <stdio.h>

int main()

{

    printf("%d",printf("Hello, World!\n"));

    return 0;

}

Output

PS C:\Users\Lenovo\OneDrive\Desktop\college> .\printf.exe

Hello, World!

14

PS C:\Users\Lenovo\OneDrive\Desktop\college>

2.

AIM- Write a C program to return number of characters which are printed by scanf.

CODE-

#include <stdio.h>

int main()

{

    printf("%d",scanf("Hello, World!\n"));

    return 0;

}

Output

PS C:\Users\Lenovo\OneDrive\Desktop\college> .\scanf.exe

hello

0

PS C:\Users\Lenovo\OneDrive\Desktop\college>>

3.

AIM- Write a C program to pass the command lines.

CODE-

#include <stdio.h>

#include <conio.h>

int main(int argc, char \*argv[])

{

    int i;

    printf("the no of argument are: %d\n", argc);

    printf("the argument are: ");

    for (i=0; i<=argc; i++)

    {

         printf("%s\n", argv[i]);

    }

     return 0;

}

Output

PS C:\Users\Lenovo\OneDrive\Desktop\college> .\a.exe Arpit this side

the no of argument are: 4

the argument are: C:\Users\Lenovo\OneDrive\Desktop\college\a.exe

Arpit

this

side

PS C:\Users\Lenovo\OneDrive\Desktop\college>

1 Command Line Arguments

In C++ it is possible to accept command line arguments. Command-line arguments are given after the name of a program in command-line operating systems

like DOS or Linux, and are passed in to the program from the operating system.

To use command line arguments in your program, you must first understand

the full declaration of the main function, which previously has accepted no arguments. In fact, main can actually accept two arguments: one argument is

number of command line arguments, and the other argument is a full list of all

of the command line arguments.

4.

AIM -Write a C program to open a file.

CODE-

#include <stdio.h>

int main()

{

    FILE \*fp;

  fp = fopen("/tmp/text.txt", "w+");

  fprinf(fp, "this is testing for fprintf...\n");

  fputs("this is testing for fputs....\n", fp);

  fclose(fp);

}

    printf("Hello World");

    return 0;

}

Output

this is testing for fprintf...

this is testing for fputs....

You can use the fopen( ) function to create a new file or to open an existing file. This call will initialize an object of the type FILE, which contains all the information necessary to control the stream.

5.

AIM - Write a C program to operate a file.

CODE-

#include <stdio.h>

#include <stdlib.h>

int main()

{

 FILE \*fp;

    char buff[255];

  fp = fopen("myfile.txt", "w");

  fscanf(fp, "%s", buff);

  printf("1: %s\n", buff);

  fgets(buff, 255,(FILE\*)fp);

  printf("2: %s\n", buff);

  fgets(buff, 255,(FILE\*)fp);

  printf("3: %s\n", buff);

  fclose(fp);

  }

Output

PS C:\Users\ Lenovo\OneDrive\Desktop\college> .\a.exe

1:    |■a

2:    |■a

3:    |■a

PS C:\Users\Lenovo\OneDrive\Desktop\college>

The function fputc() writes the character value of the argument c to the output stream referenced by fp. It returns the written character written on success otherwise EOF if there is an error

6.

AIM- Write a C program code to accept a string $str$ from the user to enter as a command line argument and create a file $my\\_file$ to write the string $str$ in $my\\_file$.

CODE-

#include <stdio.h>

#include <conio.h>

#include <stdlib.h>

int main(int argc, char \*argv[])

{

    int i;

     printf("enter the string to add in file through command line");

     {

      FILE \*fp;

       fp = fopen("string.txt", "w");

      fprintf(fp,"the string is\n");

          for(i=0;i<=argc;i++)

          {

            fprintf(fp,"%s\t",argv[i]);

          }

      fclose(fp);

     }

}

Output

PS C:\Users\Lenovo\OneDrive\Desktop\college> .\HA1.exe

enter the string to add in file through command line

PS C:\Users\Lenovo\OneDrive\Desktop\college> .\HA1.exe  HELLO ARPIT HERE

enter the string to add in file through command line

IN FILE

the string is

C:\Users\Lenovo\OneDrive\Desktop\college\HA1.exe   HELLO   ARPIT   HERE(null)

Read String from the user

You can use the scanf() function to read a string.

The scanf() function reads the sequence of characters until it encounters whitespace (space, newline, tab, etc.).

7.

AIM-

Write a C program code with login system. The main window shall contain two options, one option for register and another option for login.

CODE-

#include <stdio.h>

#include <string.h>

#include <stdlib.h>

void userlogin(void);

struct user{char username[10];

char password[10];

}\*pUser;

int main()

{

    userlogin ( );

    return 0;

    }

void userlogin(void)

{

    FILE \*fp;char uName[10], pwd[10];

    int i;

    char c;

    pUser=(struct user \*)malloc(sizeof(struct user));

    printf("1. Login Through An Existing Account\n2. Create New account\n");

    scanf("%d",& i);

    //system("cls");

    switch(i)

    {

        case 1:if ( ( fp=fopen("user.dat", "r+")) == NULL)

        {

            if ( ( fp=fopen("user.dat", "w+")) == NULL)

            {

                printf ("Could not open file\n");

                exit ( 1);

            }

        }

        printf("Username: ");

        scanf("%9s",uName);

        printf("Password: ");

        scanf("%9s",pwd);

        while ( fread (pUser, sizeof(struct user), 1, fp) == 1)

        {

            if( strcmp ( pUser->username, uName) == 0)

            {

                printf ("Match username\n");

                if( strcmp ( pUser->password, pwd) == 0)

                {

                    printf ("Match password\n");//accessUser();

                }

           }

       }

                    break;

                    case 2:

                    do

                    {

                        if ( ( fp=fopen("user.dat", "a+")) == NULL)

                         {

                             if ( ( fp=fopen("user.dat", "w+")) == NULL)

                             {

                                 printf ("Could not open file\n");

                                 exit ( 1);

                             }

                        }

                        printf("Choose A Username: ");

                        scanf("%9s",pUser->username);

                        printf("Choose A Password: ");

                        scanf("%9s",pUser->password);

                        fwrite (pUser, sizeof(struct user), 1, fp);

                        printf("Add another account? (Y/N): ");

                        scanf(" %c",&c);//skip leading whitespace

                    }

      while(c==’Y’||c==’y’);

      break;

    }

    free ( pUser);//free allocated memory

    fclose(fp);

}

OUTPUT

PS C:\Users\Lenovo\OneDrive\Desktop\college> .\HA2.exe

~WELCOME

1.LOGIN

2.REGISTER

ENTER 1 FOR LOGIN OR 2 TO REGISTER ID REGISTRATION NOT DONE

1

ENTER THE VALID INFORMATION(through command line)

NAME

DOB

CONTACT NO.

EMAIL

INFORMATION IS

PS C:\Users\Lenovo\OneDrive\Desktop\college> .\HA2.exe Arpit Agarwal 11/03/2002 8290629890 arpitaga11@gmail.com

IN FILE

the info is

C:\Users\Lenovo\OneDrive\Desktop\college\regi.exe

Arpit Agarwal

11/03/2002

8290629890

arpitaga11@gmail.com

(null)

In C programming, a string is a sequence of characters terminated with a null character \0. For example:

char c[] = "c string";

When the compiler encounters a sequence of characters enclosed in the double quotation marks, it appends a null character \0 at the end by default.

EXPERIMENT 8

AIM- Write a c++ Program to swap two variables

1. using a third variable
2. without using a third variable

CODE-

#include <iostream>

using namespace std;

int main()

{

int a,b,c;

cout << "GIVE value of a!"; cin >>a;

cout << "GIVE value of b!"; cin >>b;

c=b; b=a; a=c;

cout <<"a="<<a; cout <<"\nb="<<b;

return 0;

}

OUTPUT

GIVE value of a!

98

GIVE value of b!

65

a=65 b=98

EXPERIMENT 8.b

#include <iostream> using namespace std;

int main()

{

int a,b,c;

cout << "GIVE value of a!"; cin >>a;

cout << "GIVE value of b!"; cin >>b;

a=a\*b; b=a/b; a=a/b;

cout <<"a="<<a; cout <<"\nb="<<b;

return 0;

}

Output

GIVE value of a!

98

GIVE value of b!

65

a=65 b=98

EXPERIMENT 9

AIM-

Write a c++ Program using 1st using switch case for addtion , Subtraction

,Multiplication , division , and Modulas ?

CODE

#include <iostream> using namespace std;

int main()

{ int ch;

cout<<"CALCULATOR \n"<<"Select the operator\n"<<"1.ADDITION\n2.SU BTRACTION\n3.MULTIPLICATION\n4.DIVIDE\n5.MODULUS\n";

cin>>ch; switch(ch)

{

case 1: { int a,b;

cout << "GIVE TWO NUMBERS!";

cin >>a>>b;

cout <<"The addition is \t" <<a+b;

}

break; case 2:

{

int a,b;

cout << "GIVE TWO NUMBERS!";

cin >>a>>b; if(a<b)

{

cout <<"The subraction is \t" <<b-a;

}

else

{

cout <<"The subtraction is \t" <<a-b;

}

}

break;

case 3:

{

int a,b;

cout << "GIVE TWO NUMBERS!";

cin >>a>>b;

cout <<"The multiplication is \t" <<a\*b;

}

break;

case 4:{

int a,b;

cout << "GIVE TWO NUMBERS!";

cin >>a>>b; if(a<b)

{

cout <<"The quotient is \t" <<b/a;

}

else

{

cout <<"The quotient is \t" <<a/b;

}

return 0;

}

break; case 5:

{

int a,b;

cout << "GIVE TWO NUMBERS!";

cin >>a>>b; if(a<b)

{

cout <<"The remainder is \t" <<b%a;

}

else

{

cout <<"The remainder is \t" <<a%b;

}

}

break;

default:

cout << "ENTER A VALID NUMBER!!!!";

}

}

Output

CALCULATOR

Select the operator 1.ADDITION

1. SUBTRACTION
2. MULTIPLICATION
3. DIVIDE
4. MODULUS

5

GIVE TWO NUMBERS! 78

45

The remainder is 33

EXPERIMENT 10.

AIM-

Write a C++ Program to display Names, Roll No., and grades of 3 students who have appeared in the examination. Declare the class of name, Roll No. and grade. Create an array of class objects. Read and display the contents of the array..

CODE

#include <iostream> using namespace std;

class student\_info

{

int roll\_number;

char student\_name[50], grade[2]; public:

void read\_data(int count)

{

cout<<"\nEnter information of student\t"<<count+1; cout<<"\nSTUDENTS NAME";

cin>> student\_name; cout<<"\nSTUDENTS roll number"; cin>> roll\_number; cout<<"\nSTUDENTS grade";

cin>> grade;

}

void display\_data(int count)

{

cout<<"\nTHE INFORMATION OF OF STUDENT"<<count+1;

cout<<"\nNAME OF STUDENT\t"<<student\_name; cout<<"\nROLL NO\t"<<roll\_number; cout<<"\nGRADE\t"<<grade;

}

};

int main()

{

student\_info stud[3]; int i;

{ for(i=0; i<3 ;i++)

{

stud[i].read\_data(i);

}

}

cout<<"\nsaved\n"; for(i=0; i<3 ;i++)

{

stud[i].display\_data(i);

}

return 0;

}

OUTPUT

Enter information of student 1 STUDENTS NAME

Arpit Agarwak

STUDENTS roll number 7865

STUDENTS grade A

Enter information of student 2 STUDENTS NAME

Samiksha

STUDENTS roll number

5678

STUDENTS grade A+

Enter information of student 3 STUDENTS NAME

Sachin

STUDENTS roll number 5342

STUDENTS grade B

saved

THE INFORMATION OF OF STUDENT1 NAME OF STUDENT Arpit Agarwal

ROLL NO 7865

GRADE A

THE INFORMATION OF OF STUDENT2

NAME OF STUDENT Samiksha

GRADE A+

THE INFORMATION OF OF STUDENT3 NAME OF STUDENT Sachin

ROLL NO 5342 GRADE B

PS C:\Users\Lenovo\OneDrive\Desktop\college >

EXPERIMENT 11

AIM-

Write a C++ program to sort a list of numbers in ascending order.

CODE

#include <iostream>

using namespace std;

int main()

{

int arr[100];

int size, i, j, temp;

// Reading the size of the array cout<<"Enter size of array: "; cin>>size;

//Reading elements of array cout<<"Enter elements in array: "; for(i=0; i<size; i++)

{

cin>>arr[i];

}

//Sorting an array in ascending order for(i=0; i<size; i++)

{

for(j=i+1; j<size; j++)

{

//If there is a smaller element found on right of the array then swap it. if(arr[j] < arr[i])

{

temp = arr[i]; arr[i] = arr[j]; arr[j] = temp;

}

}

}

//Printing the sorted array in ascending order cout<<"Elements of array in sorted ascending order:"<<endl; for(i=0; i<size; i++)

{

cout<<arr[i]<<endl;

}

return 0;

}

OUTPUT

Enter size of array: 5 Enter elements in array: 8 67

82

13

56

Elements of array in sorted ascending order: 8

13

56

67

82

EXPERIMENT 12

AIM

Write a C++ program to generate all the prime numbers between 1 and n, wheren is a value supplied by the user.

CODE

#include <iostream> using namespace std;

int isPrimeNumber(int); int main() {

bool isPrime; int count;

cout<<"Enter the value of n:"; cin>>count;

for(int n = 2; n < count; n++)

{

isPrime = isPrimeNumber(n); if(isPrime == true)

cout<<n<<" ";

}

return 0;

}

int isPrimeNumber(int n) { bool isPrime = true;

for(int i = 2; i <= n/2; i++) { if (n%i == 0)

{

isPrime = false; break;

}

}

return isPrime;

}

Output:

Enter the value of n:50

2 3 5 7 11 13 17 19 23 29 31 37 41 43 47