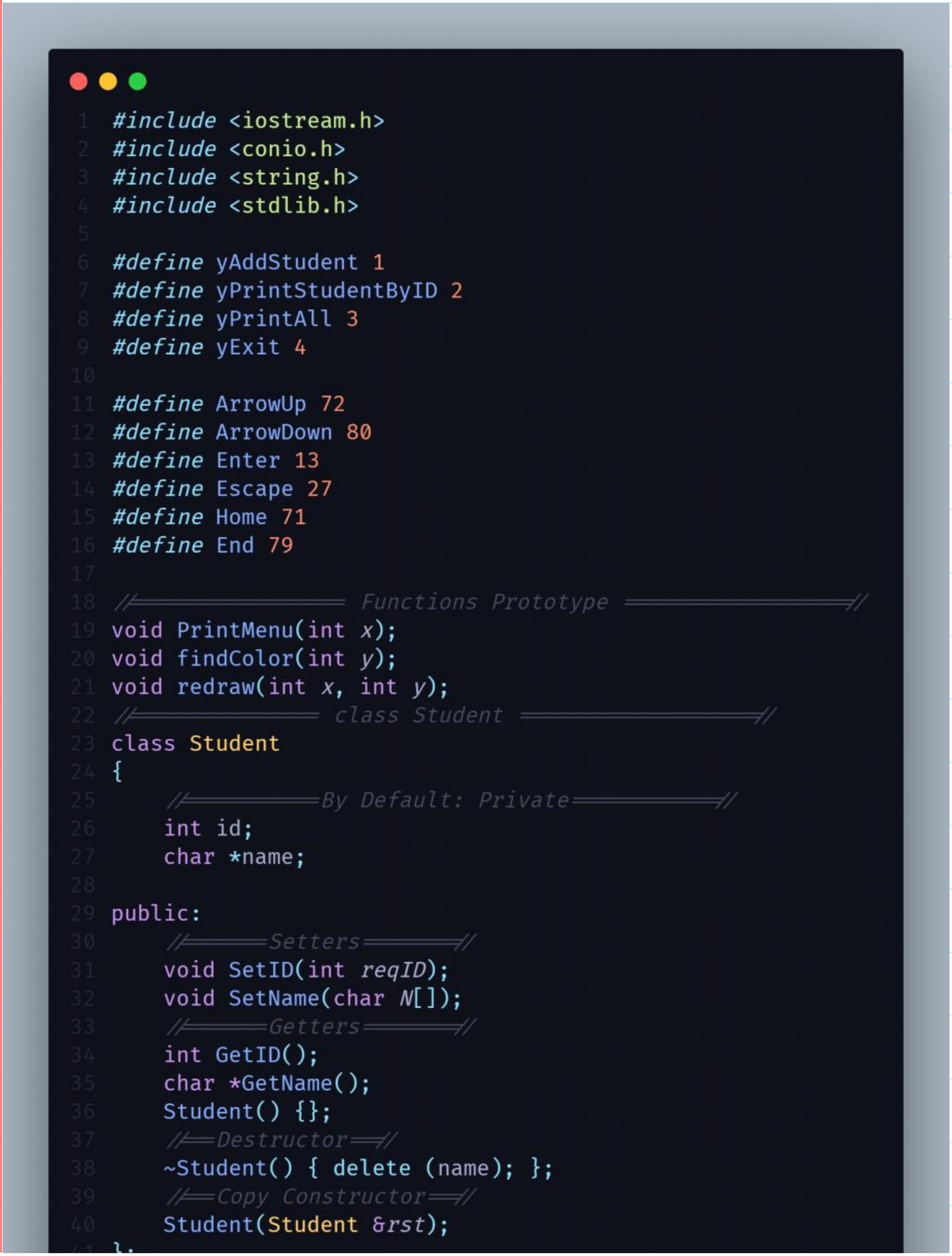
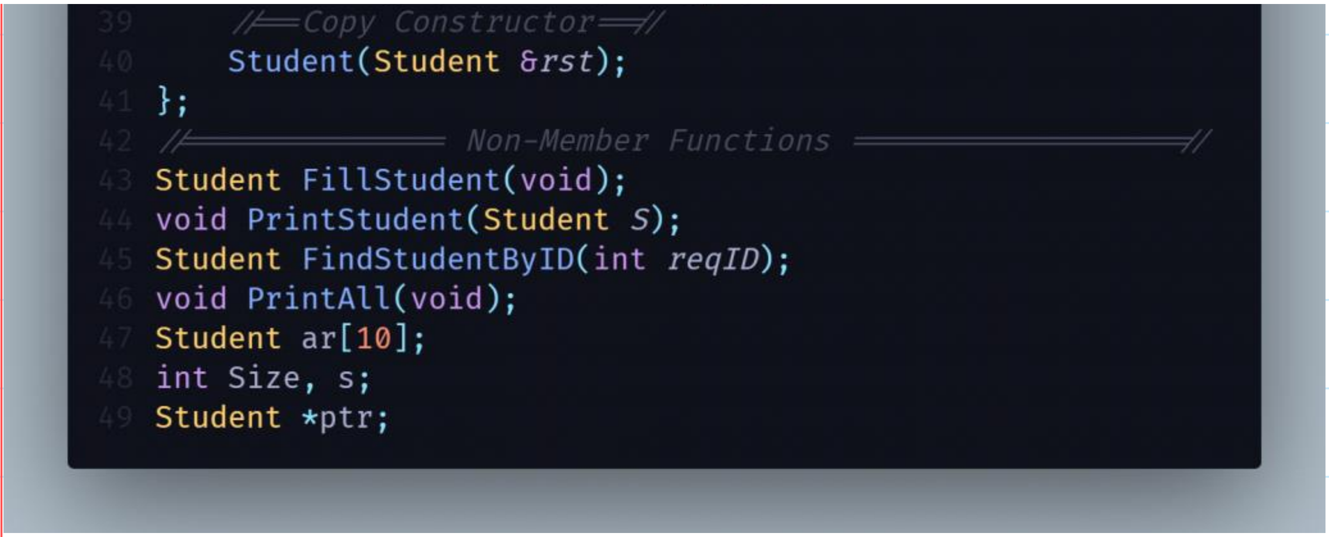
1

Saturday, December 17, 2022 7:16 PM



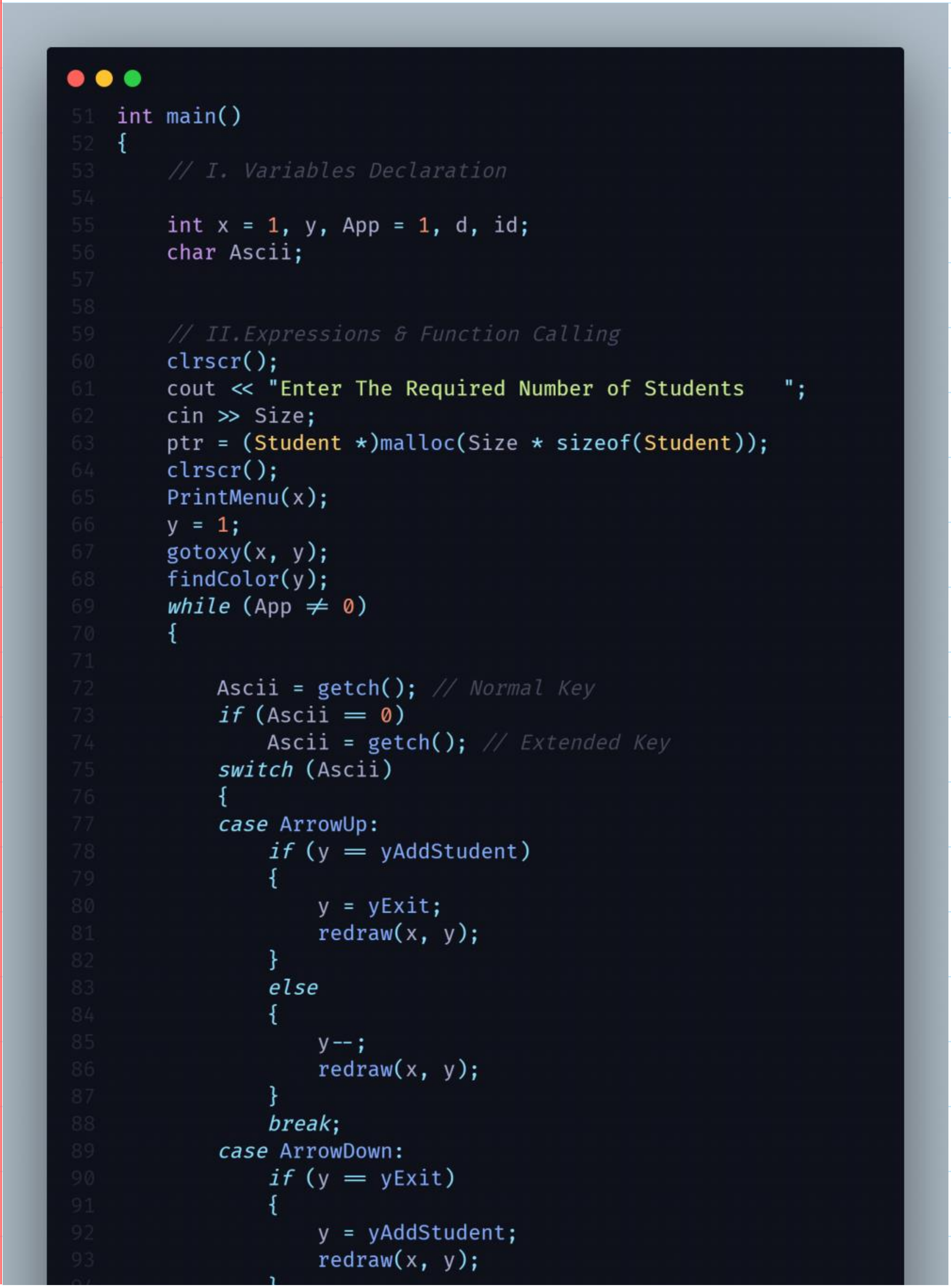
```cpp
#include <iostream.h>
#include <conio.h>
#include <string.h>
#include <stdlib.h>

#define yAddStudent 1
#define yPrintStudentByID 2
#define yPrintAll 3
#define yExit 4

#define ArrowUp 72
#define ArrowDown 80
#define Enter 13
#define Escape 27
#define Home 71
#define End 79

//═════════════════ Functions Prototype ═════════════════//
void PrintMenu(int x);
void findColor(int y);
void redraw(int x, int y);
//═════════════════ class Student ═════════════════//
class Student
{
    //═════════By Default: Private═════════//
    int id;
    char *name;

public:
    //═════Setters═════//
    void SetID(int reqID);
    void SetName(char N[]);
    //═════Getters═════//
    int GetID();
    char *GetName();
    Student() {};
    //══Destructor══//
    ~Student() { delete (name); };
    //══Copy Constructor══//
    Student(Student &rst);
};
```



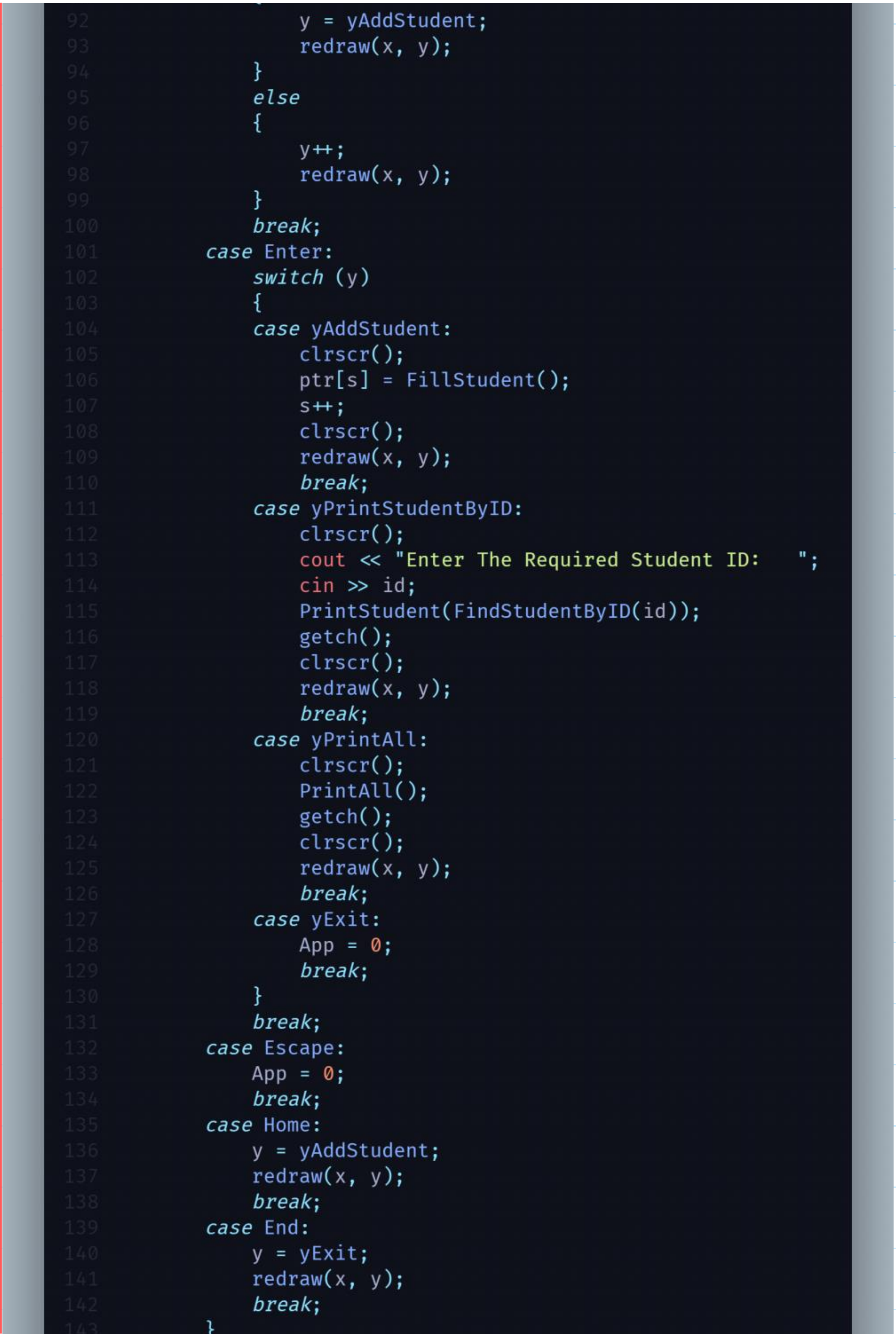
```
    //==Copy Constructor==//
    Student(Student &rst);
};
//================ Non-Member Functions ================//
Student FillStudent(void);
void PrintStudent(Student S);
Student FindStudentByID(int reqID);
void PrintAll(void);
Student ar[10];
int Size, s;
Student *ptr;
```

2

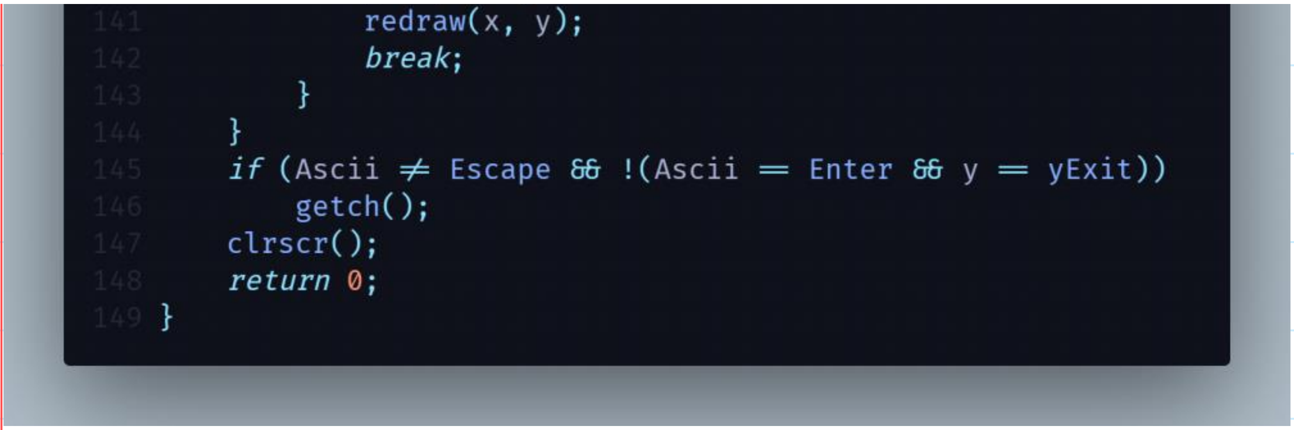
Saturday, December 17, 2022 7:17 PM



```
int main()
{
    // I. Variables Declaration

    int x = 1, y, App = 1, d, id;
    char Ascii;


    // II.Expressions & Function Calling
    clrscr();
    cout << "Enter The Required Number of Students    ";
    cin >> Size;
    ptr = (Student *)malloc(Size * sizeof(Student));
    clrscr();
    PrintMenu(x);
    y = 1;
    gotoxy(x, y);
    findColor(y);
    while (App != 0)
    {

        Ascii = getch(); // Normal Key
        if (Ascii == 0)
            Ascii = getch(); // Extended Key
        switch (Ascii)
        {
        case ArrowUp:
            if (y == yAddStudent)
            {
                y = yExit;
                redraw(x, y);
            }
            else
            {
                y--;
                redraw(x, y);
            }
            break;
        case ArrowDown:
            if (y == yExit)
            {
                y = yAddStudent;
                redraw(x, y);
```



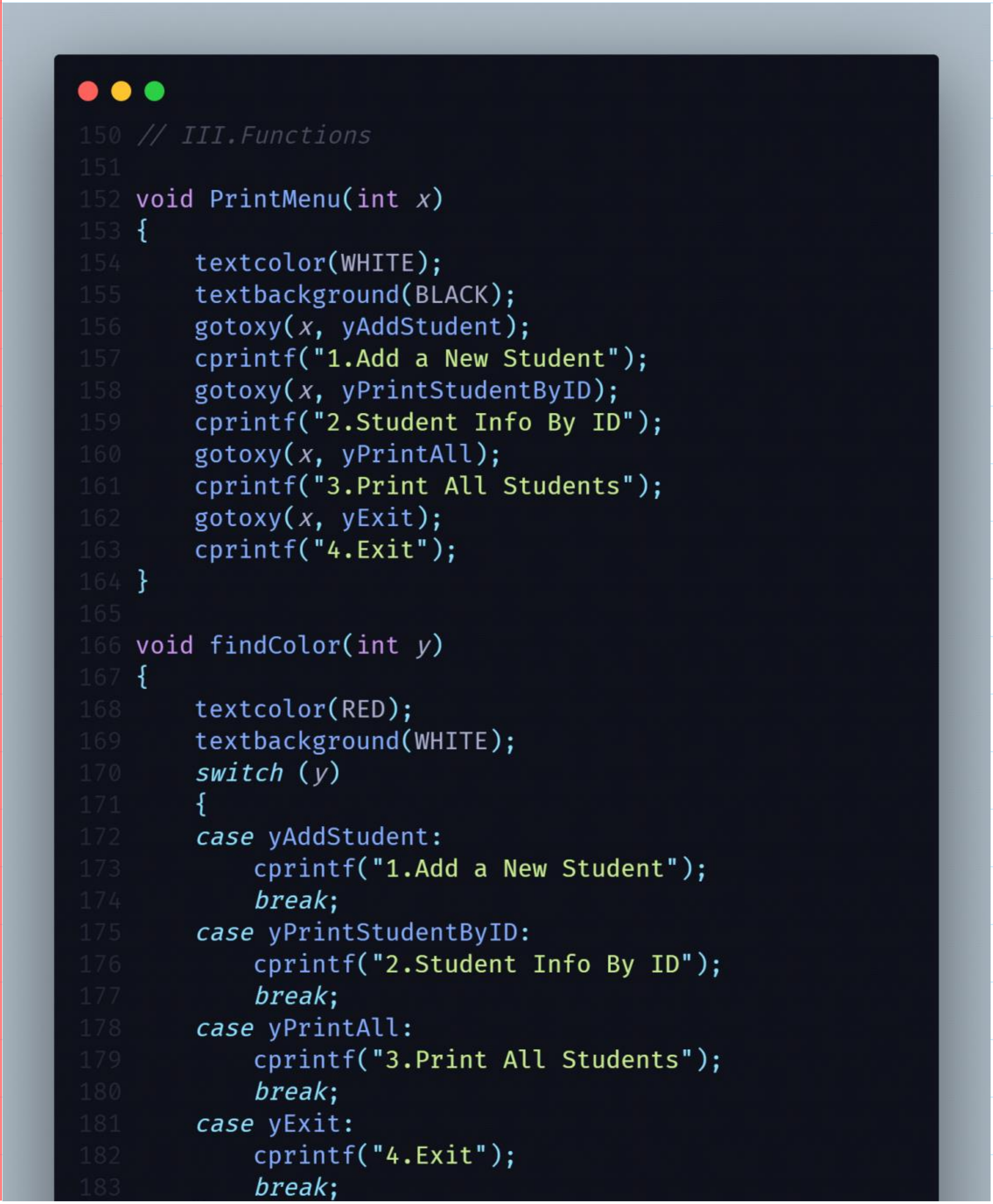
```
                y = yAddStudent;
                redraw(x, y);
            }
            else
            {
                y++;
                redraw(x, y);
            }
            break;
        case Enter:
            switch (y)
            {
            case yAddStudent:
                clrscr();
                ptr[s] = FillStudent();
                s++;
                clrscr();
                redraw(x, y);
                break;
            case yPrintStudentByID:
                clrscr();
                cout << "Enter The Required Student ID:    ";
                cin >> id;
                PrintStudent(FindStudentByID(id));
                getch();
                clrscr();
                redraw(x, y);
                break;
            case yPrintAll:
                clrscr();
                PrintAll();
                getch();
                clrscr();
                redraw(x, y);
                break;
            case yExit:
                App = 0;
                break;
            }
            break;
        case Escape:
            App = 0;
            break;
        case Home:
            y = yAddStudent;
            redraw(x, y);
            break;
        case End:
            y = yExit;
            redraw(x, y);
            break;
        }
```



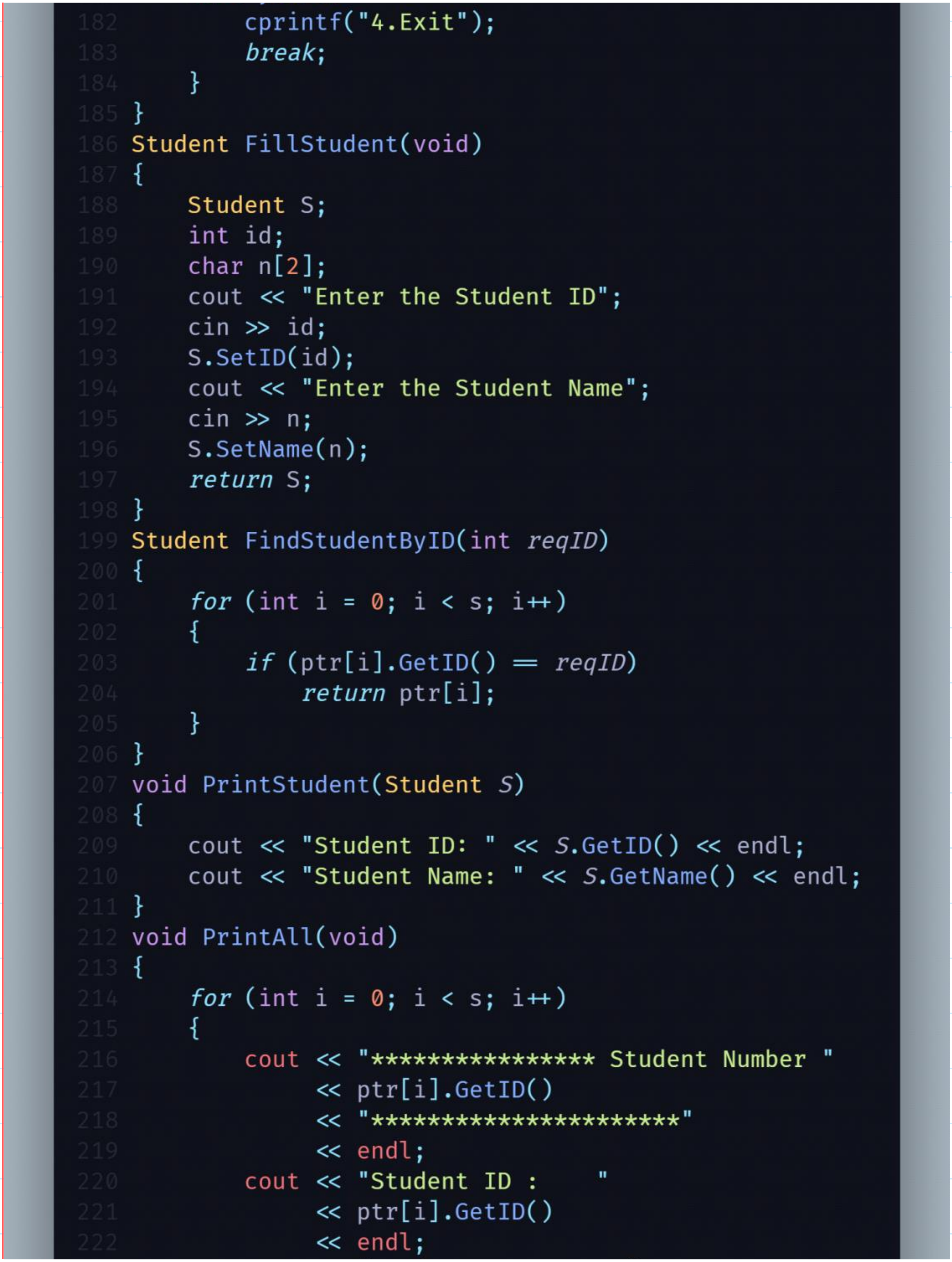
```
            redraw(x, y);
            break;
        }
    }
    if (Ascii != Escape && !(Ascii == Enter && y == yExit))
        getch();
    clrscr();
    return 0;
}
```

3

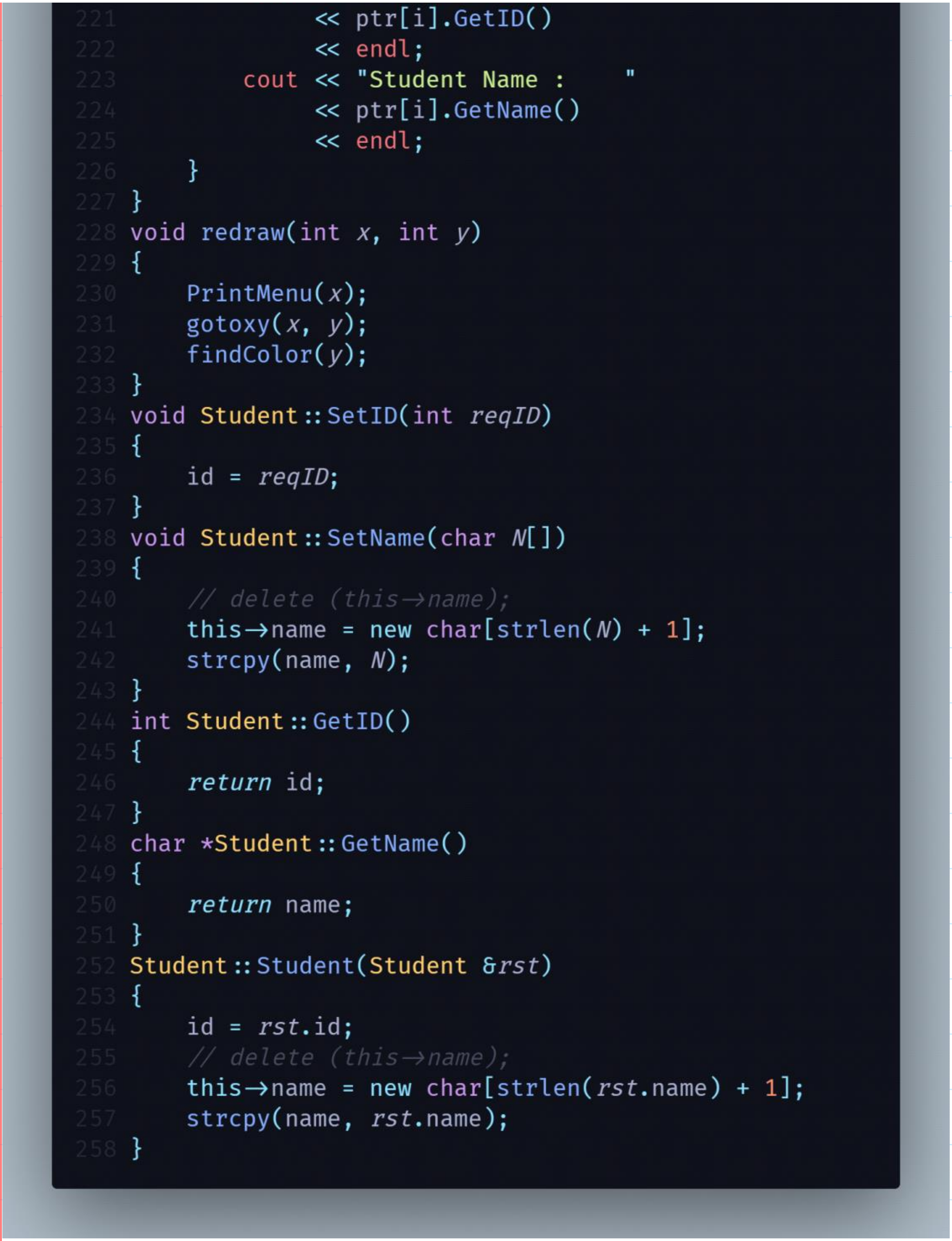
Saturday, December 17, 2022 7:17 PM



```
// III.Functions

void PrintMenu(int x)
{
    textcolor(WHITE);
    textbackground(BLACK);
    gotoxy(x, yAddStudent);
    cprintf("1.Add a New Student");
    gotoxy(x, yPrintStudentByID);
    cprintf("2.Student Info By ID");
    gotoxy(x, yPrintAll);
    cprintf("3.Print All Students");
    gotoxy(x, yExit);
    cprintf("4.Exit");
}

void findColor(int y)
{
    textcolor(RED);
    textbackground(WHITE);
    switch (y)
    {
    case yAddStudent:
        cprintf("1.Add a New Student");
        break;
    case yPrintStudentByID:
        cprintf("2.Student Info By ID");
        break;
    case yPrintAll:
        cprintf("3.Print All Students");
        break;
    case yExit:
        cprintf("4.Exit");
        break;
```



```
        cprintf("4.Exit");
        break;
    }
}
Student FillStudent(void)
{
    Student S;
    int id;
    char n[2];
    cout << "Enter the Student ID";
    cin >> id;
    S.SetID(id);
    cout << "Enter the Student Name";
    cin >> n;
    S.SetName(n);
    return S;
}
Student FindStudentByID(int reqID)
{
    for (int i = 0; i < s; i++)
    {
        if (ptr[i].GetID() == reqID)
            return ptr[i];
    }
}
void PrintStudent(Student S)
{
    cout << "Student ID: " << S.GetID() << endl;
    cout << "Student Name: " << S.GetName() << endl;
}
void PrintAll(void)
{
    for (int i = 0; i < s; i++)
    {
        cout << "**************** Student Number "
             << ptr[i].GetID()
             << "**********************"
             << endl;
        cout << "Student ID :     "
             << ptr[i].GetID()
             << endl;
```



```
             << ptr[i].GetID()
             << endl;
        cout << "Student Name :    "
             << ptr[i].GetName()
             << endl;
    }
}
void redraw(int x, int y)
{
    PrintMenu(x);
    gotoxy(x, y);
    findColor(y);
}
void Student::SetID(int reqID)
{
    id = reqID;
}
void Student::SetName(char N[])
{
    // delete (this->name);
    this->name = new char[strlen(N) + 1];
    strcpy(name, N);
}
int Student::GetID()
{
    return id;
}
char *Student::GetName()
{
    return name;
}
Student::Student(Student &rst)
{
    id = rst.id;
    // delete (this->name);
    this->name = new char[strlen(rst.name) + 1];
    strcpy(name, rst.name);
}
```