

과제 #3

13조(전대원, 소재현)

5개의 헤더파일과 6개의 소스파일 그리고 실행결과

The screenshot displays the Visual Studio IDE with a C++ project named 'Project2'. The source code in `main.cpp` includes headers for `Line.h`, `Rect.h`, `Shape.h`, `GraphicEditor.h`, `Circle.h`, and `Rect.h`. The `main` function creates a `GraphicEditor` object and calls `run()`.

The console output shows the program's execution, including menu prompts and user input for creating and deleting shapes. The output is as follows:

```
그래픽 에디터입니다.
삽입:1, 삭제:2, 모두보기:3, 종료:4 >> 1
선:1, 원:2, 사각형:3 >> 1
삽입:1, 삭제:2, 모두보기:3, 종료:4 >> 1
선:1, 원:2, 사각형:3 >> 2
삽입:1, 삭제:2, 모두보기:3, 종료:4 >> 1
선:1, 원:2, 사각형:3 >> 3
삽입:1, 삭제:2, 모두보기:3, 종료:4 >> 3
0: Line
1: Circle
2: Rectangle
삽입:1, 삭제:2, 모두보기:3, 종료:4 >> 2
삭제하고자 하는 도형의 인덱스 >> 1
삽입:1, 삭제:2, 모두보기:3, 종료:4 >> 3
0: Line
1: Rectangle
삽입:1, 삭제:2, 모두보기:3, 종료:4 >> 4

C:\C++ 2023.08\Project2\Debug\Project2.exe(프로세스 15192개)이(가) 종료되었습니다(코드: 0개).
이 창을 닫으려면 아무 키나 누르세요 ...
```

헤더파일

Circle.h

```
class Circle : public Shape {  
protected:  
    virtual void draw();  
};
```

GraphicEditor.h

```
#include <vector>  
#include "Shape.h"  
  
class GraphicEditor {  
private:  
    std::vector<Shape*> v;  
  
public:  
    GraphicEditor();  
    ~GraphicEditor();  
  
    void run();  
    void insert();  
    void remove();  
    void viewAll();  
};
```

Line.h

```
class Line : public Shape {  
protected:  
    virtual void draw();  
};
```

Rect.h

```
class Rect : public Shape {  
protected:  
    virtual void draw();  
};
```

Shape.h

```
class Shape {
protected:
    virtual void draw() = 0;
public:
    void paint();
};
```

소스파일

Circle.cpp

```
#include <iostream>
using namespace std;
#include "Shape.h"
#include "Circle.h"
void Circle::draw() {
    cout << "Circle" << endl;
}
```

GraphicEditor.cpp

```
#include <iostream>
#include "GraphicEditor.h"
#include "Line.h"
#include "Circle.h"
#include "Rect.h"
#include <vector>
using namespace std;
GraphicEditor::GraphicEditor() {
}

GraphicEditor::~GraphicEditor() {
    for (Shape* shape : v) {
        delete shape;
    }
    v.clear();
}

void GraphicEditor::run() {
    cout << "그래픽 에디터입니다." << endl;
    while (true) {
```

```

    int command;
    cout << "삽입:1, 삭제:2, 모두보기:3, 종료:4 >> ";
    cin >> command;
    switch (command) {
    case 1:
        insert();
        break;
    case 2:
        remove();
        break;
    case 3:
        viewAll();
        break;
    case 4:
        return;
    default:
        std::cout << "잘못된 입력입니다.\n";
        break;
    }
}
}

```

```

void GraphicEditor::insert() {
    int shapeType;
    cout << "선:1, 원:2, 사각형:3 >> ";
    cin >> shapeType;
    Shape* p;
    switch (shapeType) {
    case 1:
        p = new Line;
        break;
    case 2:
        p = new Circle;
        break;
    case 3:
        p = new Rect;
        break;
    default:
        cout << "잘못된 입력입니다.\n";
        return;
    }
    v.push_back(p);
}

```

```

void GraphicEditor::remove() {
    int index;
    cout << "삭제하고자 하는 도형의 인덱스 >> ";
    cin >> index;
    if (index < 0 || index >= v.size()) {
        cout << "잘못된 인덱스입니다. \n";
        return;
    }
    delete v[index];
    v.erase(v.begin() + index);
}

```

```

}

void GraphicEditor::viewAll() {
    for (int i = 0; i < v.size(); i++) {
        cout << i << ": ";
        v[i]->paint();
    }
}

```

Line.cpp

```

#include <iostream>
using namespace std;

#include "Shape.h"
#include "Line.h"

void Line::draw() {
    cout << "Line" << endl;
}

```

Main.cpp

```

#include <iostream>
#include "GraphicEditor.h"
#include "Line.h"
#include "Circle.h"
#include "Rect.h"

int main() {
    GraphicEditor editor;
    editor.run();

    return 0;
}

```

Rect.cpp

```

#include <iostream>
using namespace std;
#include "Shape.h"
#include "Rect.h"
void Rect::draw() {
    cout << "Rectangle" << endl;
}

```

```
}
```

Shape.cpp

```
#include <iostream>
#include "Shape.h"
using namespace std;

void Shape::paint() {
    draw();
}
```