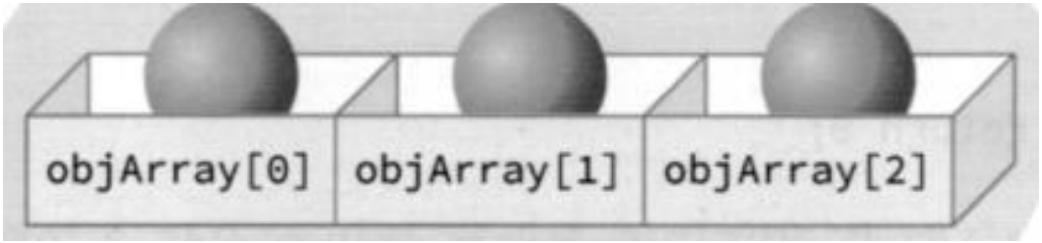
객체 배열

객체 배열

■ 객체를 요소로 가지는 배열

- 클래스명 배열_이름[배열_크기];

- Circle objArray[3];



- objArray[0].calcArea();

객체 배열

■ chapter06/ex01_object_array.cpp] 객체 배열

```
#include <iostream>
using namespace std;

class Circle {
public:
  int x, y;
  int radius;

  Circle(): x(0), y(0), radius(0) {}
  Circle(int x, int y, int r): x(x), y(y), radius(r) {}
  void print() {
    cout << "반지름: " << radius << " @(" << x << "," << y << ")" << endl;
  }
};
```

객체 배열

■ chapter06/ex01_object_array.cpp] 객체 배열

```
int main() {
  Circle objArray[10];  // 10개의 요소가 디폴트 생성자에 의해 생성

  for(Circle& c: objArray) {
    c.x = rand()%500;
    c.y = rand()%300;
    c.radius = rand()%100;
  }

  for(Circle c: objArray) {
    c.print();
  }

  return 0;
}
```

객체 배열

■ 객체 배열의 초기화

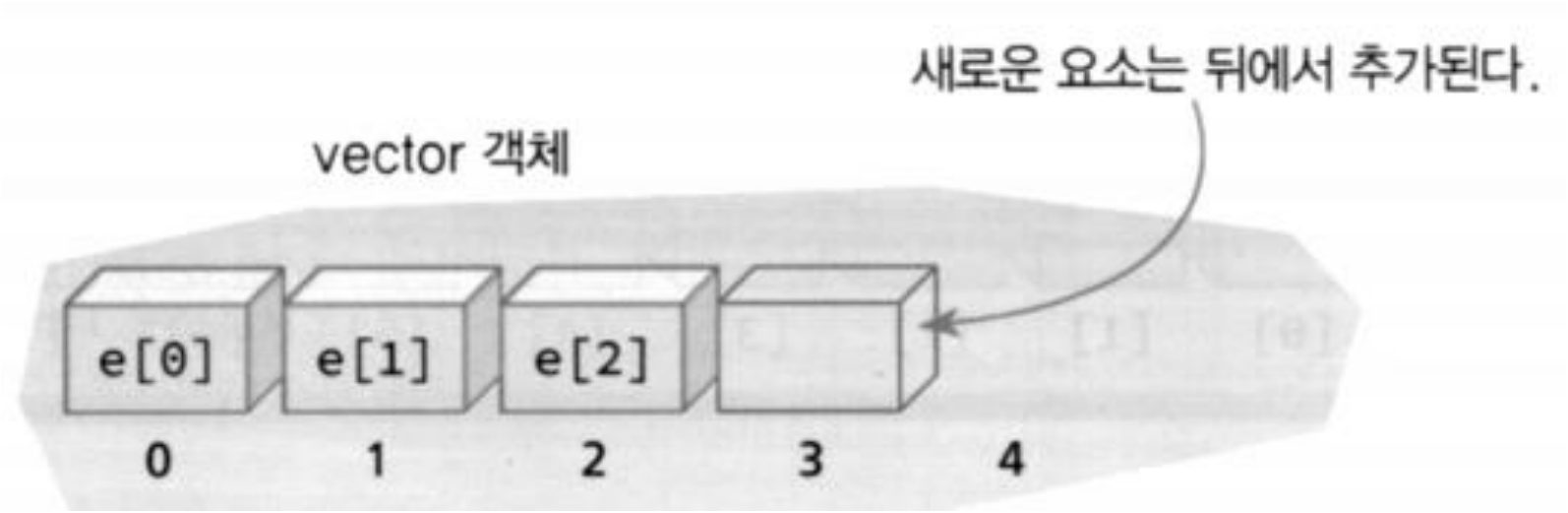
```
Circle objArray[10] = {
    Circle(100, 100, 30),
    Circle(100, 200, 50),
    Circle(100, 300, 80),
    ...
};
```

```
Circle objArray[10] {
    Circle(100, 100, 30),
    Circle(100, 200, 50),
    Circle(100, 300, 80),
    ...
};
```

벡터

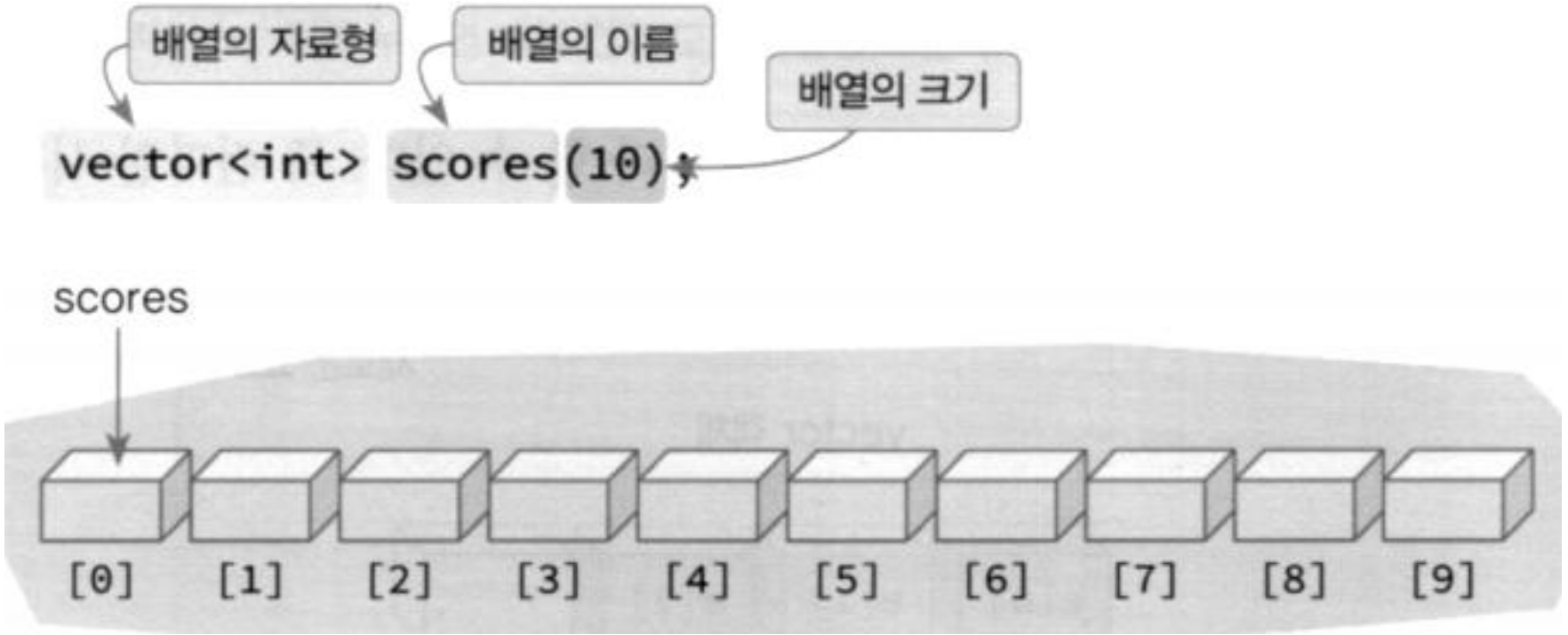
■ 벡터

- ○ 배열은 크기가 고정되어 있는 단점이 있음
- ○ 벡터는 동적으로 크기를 자동 조정
- ○ `#include <vector>`



벡터

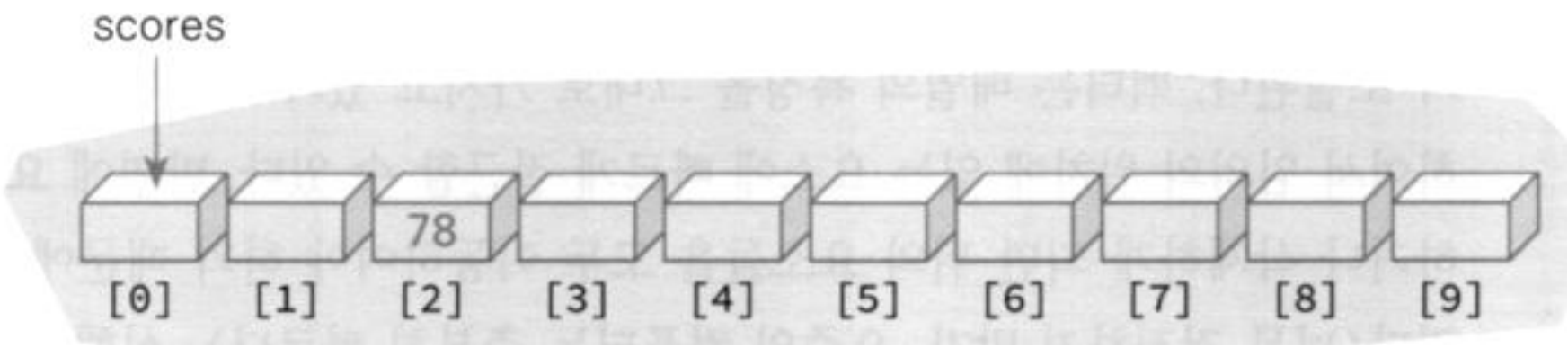
■ 벡터의 기초



벡터

■ 벡터의 기초

```
scores[2] = 78;

cout << score[2] << endl;
```



벡터

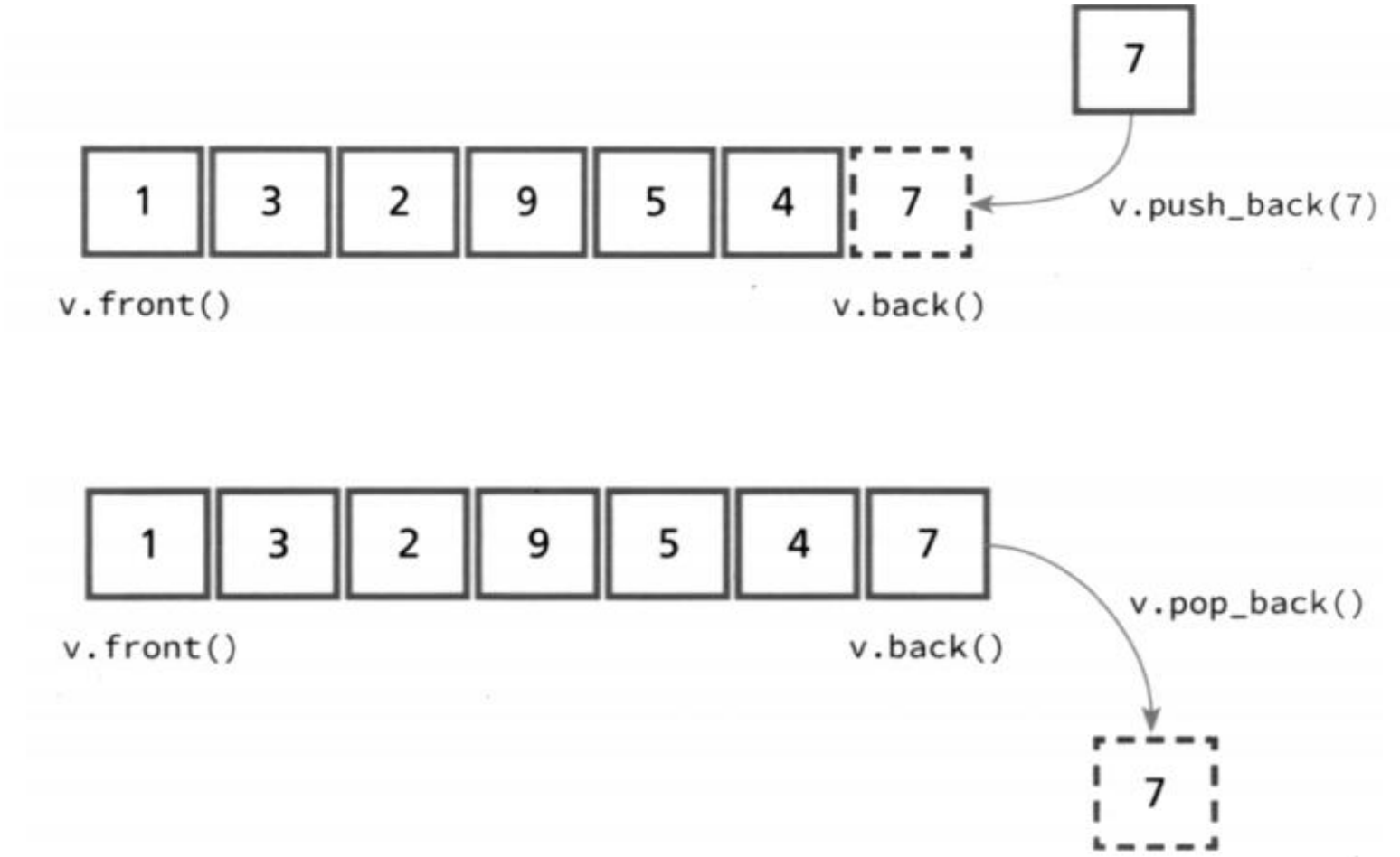
■ chapter06/ex02_vector.cpp] 벡터의 기초

```
#include <vector>
#include <iostream>
using namespace std;

int main() {
  vector<int> fibo = {0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89};

  for(auto& number: fibo) {
    cout << number << ' ';
  }

  cout << endl;
  return 0;
}
```

```
for (int i = 0; i < fibonacci.size(); i++)
    cout << fibonacci[i] << ' ';
```

벡터

- push_back()과 pop_back()



벡터

- chapter06/ex03_vector_op.cpp] push_back()과 pop_back()

```
#include <vector>
#include <iostream>
using namespace std;

int main() {
  vector<int> v;
  v.push_back(10);
  v.push_back(20);
  v.push_back(30);
  v.push_back(40);
  v.push_back(50);

  for(auto& e: v) {
    cout << e << ' ';
  }
  cout << endl;
  return 0;
}
```

벡터

■ chapter06/ex04_vector_op2.cpp] push_back()과 pop_back()

```
#include <vector>
#include <iostream>
using namespace std;

int main() {
  vector<int> v;
  for(int i=0; i<10; i++) {
    v.push_back(i);
  }

  for(auto& e: v) {
    cout << e << ' ';
  }
  cout << endl;
```

벡터

■ chapter06/ex04_vector_op2.cpp] push_back()과 pop_back()

```
  cout << "삭제" << endl;

  while(v.empty() != true) {
    cout << v.back() << " ";
    v.pop_back();
  }

  return 0;
}
```

벡터

- 벡터에서 요소의 위치


```
for (auto p = v.begin(); p != v.end(); ++p)
    cout << *p << endl;
```

- 중간에 삽입하는 방법
  - `v.insert(v.begin()+i, value);`

- 중간에서 삭제하는 방법
  - `v.erase(v.begin()+i);`

벡터

■ chapter06/ex05_vector_op3.cpp] 벡터와 연산자

```
#include <vector>
#include <iostream>
using namespace std;

int main() {
  vector<int> v1{1, 2, 3, 4, 5};
  vector<int> v2(v1);

  if(v1 == v2) {
    cout << "2개의 벡터가 일치합니다." << endl;
  }

  return 0;
}
```

벡터

■ chapter06/ex06_object_save.cpp] 객체의 저장

```
#include <vector>
#include <iostream>
using namespace std;

class Circle {
public:
  int x, y;
  int radius;

  Circle(): x(0), y(0), radius(0) {}
  Circle(int x, int y, int r): x(x), y(y), radius(r) {}
  void print() {
    cout << "반지름: " << radius << " @(" << x << "," << y << ")" << endl;
  }
};
```

벡터

■ chapter06/ex06_object_save.cpp] 객체의 저장

```
int main() {

  vector<Circle> objArray;

  for(int i=0; i<10; i++) {
     Circle obj{rand()%300, rand()%300, rand()%100};
     objArray.push_back(obj);
  }

  for(auto &c: objArray) {
    c.print();
  }
  return 0;
}
```