Day10 (H1)

Array of Objects

20150821

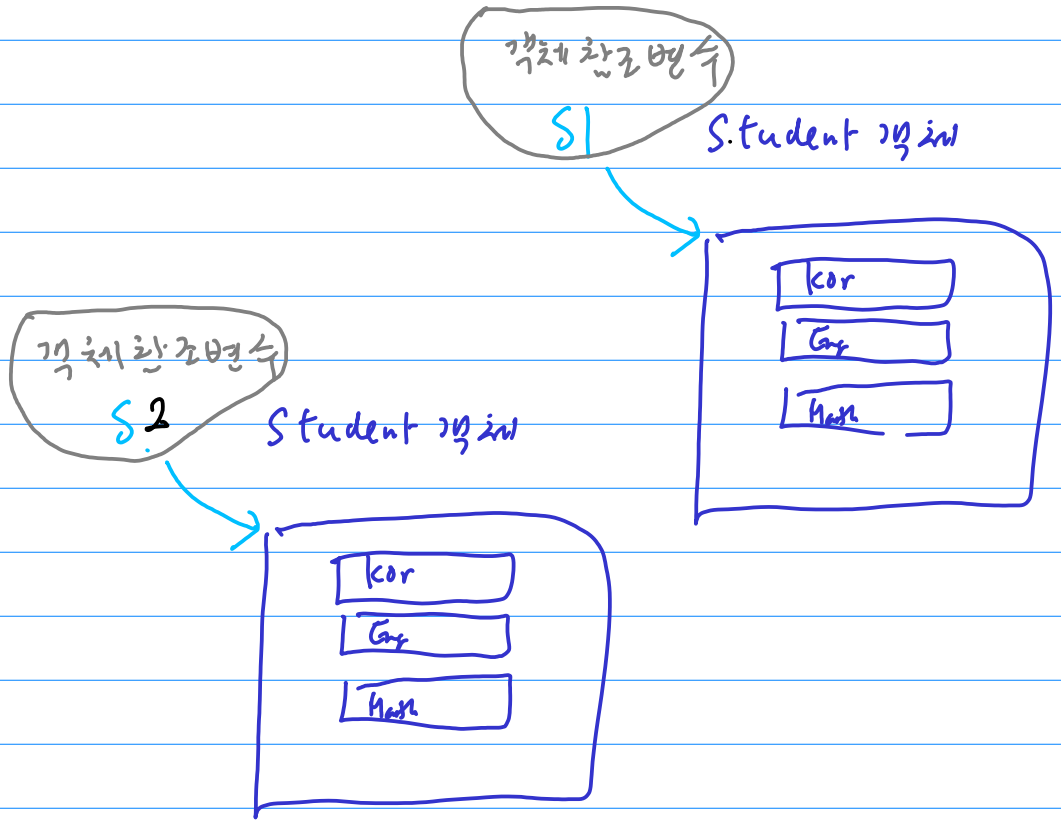
생성자 함수

```
class Student {
    int Kor;
    int Eng;
    int Math;

    Student(                    )    { Kor= 0; Eng= 0; Math=0; }
    Student(int x, int y, int z)    { Kor= x; Eng= y; Math=z; }

    double avg() { return (Kor+Eng+Math) / 3.0; }
    void disp() {
        System.out.println("--------------------");
        System.out.println( "Kor= " + Kor   );
        System.out.println( "Eng= " + Eng   );
        System.out.println( "Math=" + Math  );
        System.out.println( "Avg= " + avg() );
    }
```

this keyword

this --> Class 선언시 앞으로 만들어질 객체를 가리킨다.

```
Student (int x, int y, int z) {
    this.Kor = x;  this.Eng = y;  this.Math = z;
}
```



* class 선언시 객체 참조 변수 S1, S2를 미리 알수 없음

→ Class 선언에는 this를 사용

Student (int Kor, int Eng, int Math) {

this.Kor = Kor; this.Eng = Eng; this.Math = Math;

}

```
class  Student {
    int Kor;
    int Eng;
    int Math;

    Student(                    )
    { Kor= 0; Eng= 0; Math=0; }

    Student(int Kor, int Eng, int Math)
    { Kor= Kor; Eng= Eng; Math=Math; }

    double avg() { return (Kor+Eng+Math) / 3.0; }
    void disp() {
        System.out.println("--------------------");
        System.out.println( "Kor= " + Kor   );
        System.out.println( "Eng= " + Eng   );
        System.out.println( "Math=" + Math  );
        System.out.println( "Avg= " + avg() );
    }
```

모두 매개변수 parameter

Kor, Eng, Math

field 들은

Kor = 0

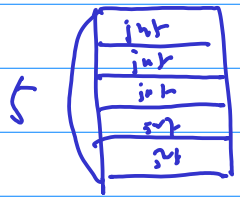
Eng = 0

Math = 0

값이 할당이 되지 않는다.

Array of References to Objects

`int[] a = new int[5]` — `a[i]` : int 변수



`double[] a = new double[5]` — `a[i]` : double 변수

`String[] a = new String[5]` — `a[i]` : String 객체 참조변수

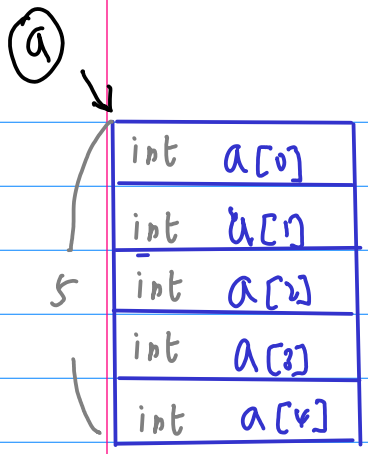
(String[] : class type)

`Student[] a = new Student[5]` — `a[i]` : Student 객체 참조변수

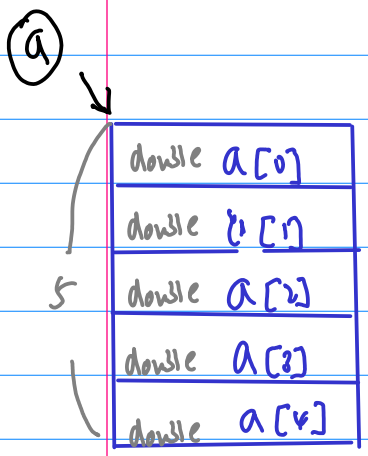
(Student[] : class type)

↓

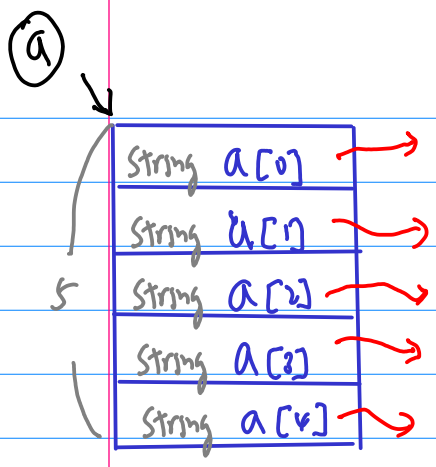
references



int[] a = new int[5]



double [] a = new double[5]



String [] a = new String[5]

String X;

참조변수만 선언

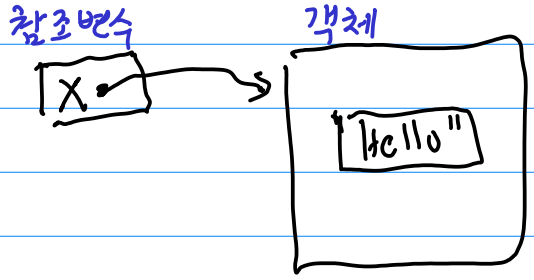
객체 생성

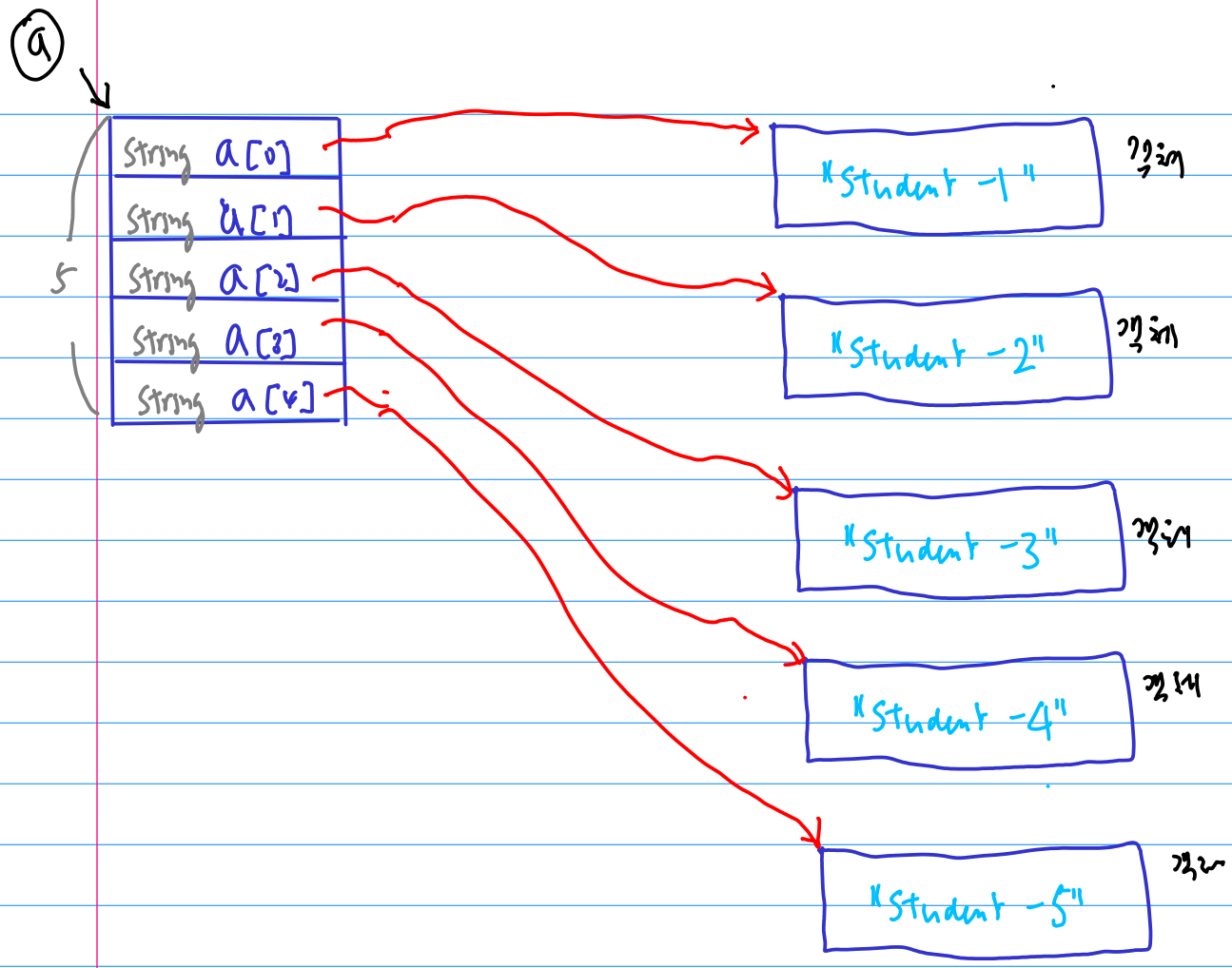
String X = new String("Hello");

String X = "Hello";

class type

생성자 함수

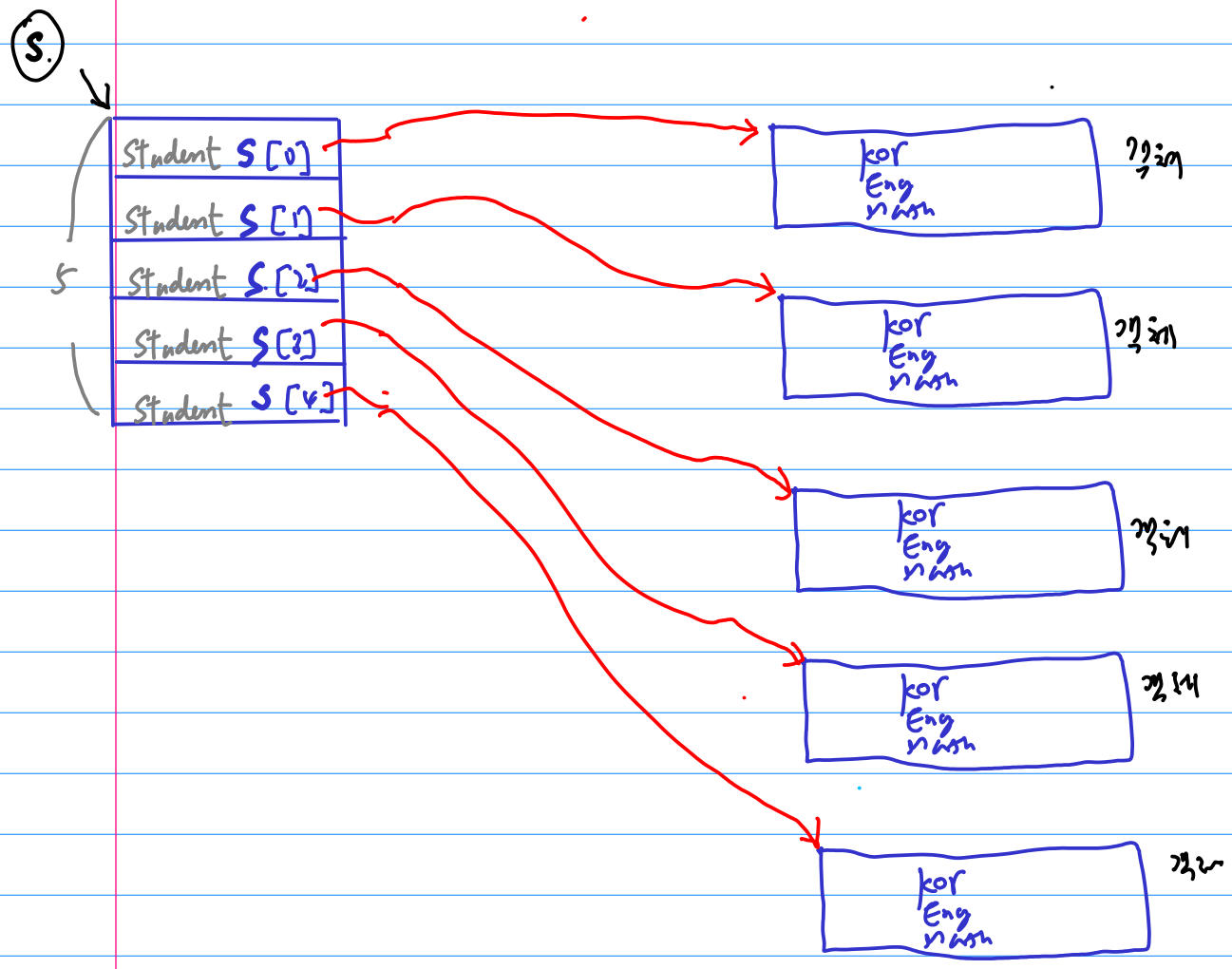


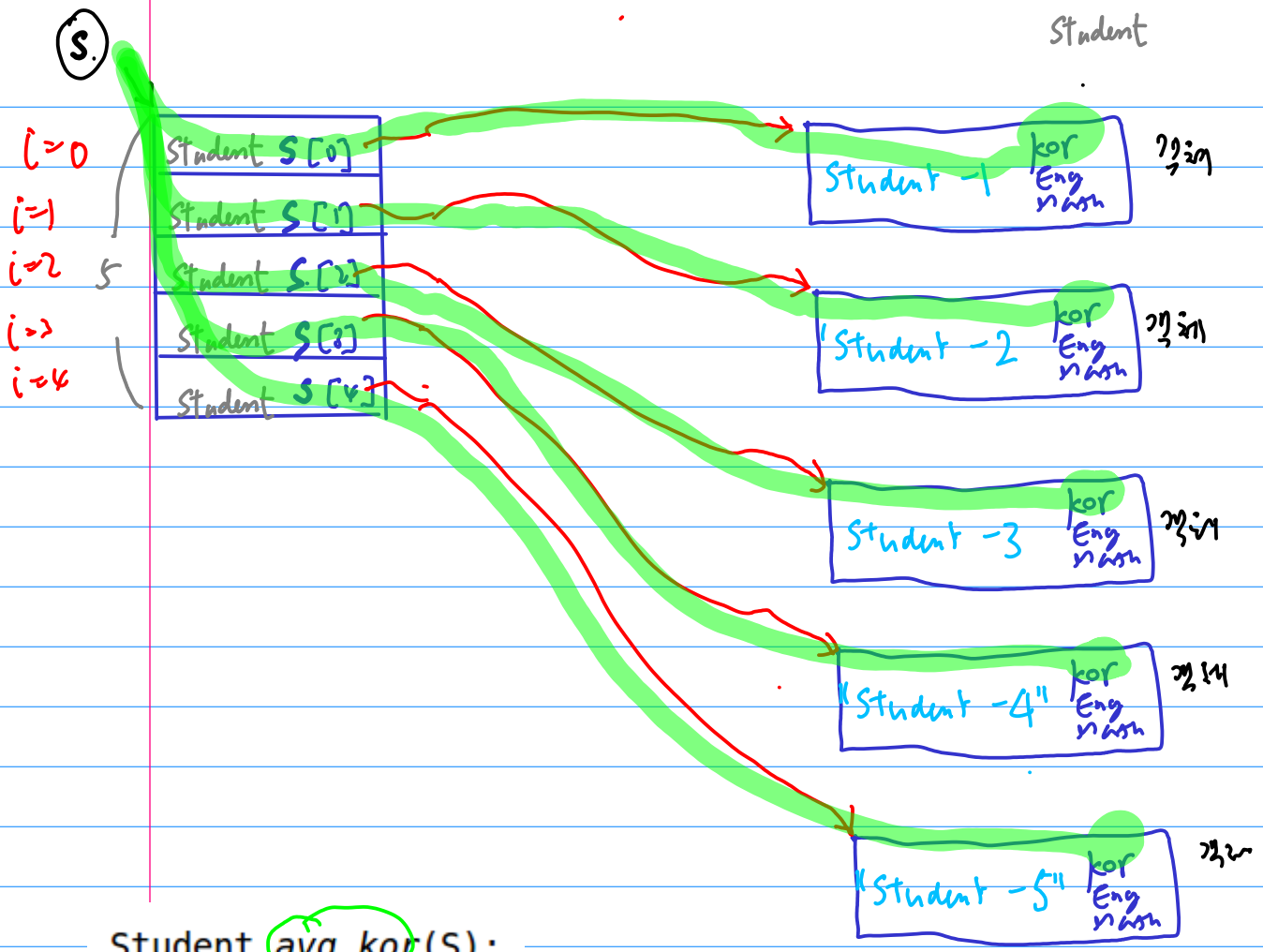



```
a[0] = new String("Student-1");
a[1] = new String("Student-2");
a[2] = new String("Student-3");
a[3] = new String("Student-4");
a[4] = new String("Student-5");
```

```
Student[] S = new Student[5];

S[0] = new Student(99, 45, 90);
S[1] = new Student(88, 55, 80);
S[2] = new Student(77, 65, 90);
S[3] = new Student(66, 75, 80);
S[4] = new Student(55, 85, 90);

S[0].disp();
S[1].disp();
S[2].disp();
S[3].disp();
S[4].disp();
```

객체 참조 변수






```
Student.avg_kor(S);
```

class 이름

static method

S[0].kor
S[1].kor
S[2].kor
S[3].kor
S[4].kor

Class Student

```
static void avg_kor(Student[] S) {
    int i;
    double avg = 0;
    for (i=0; i<S.length; ++i) {
        avg += S[i].Kor;
    }
    avg /= S.length;

    System.out.println("Kor Avg = " + avg);

}
```

```java
static void avg_mode(Student[] S, int mode) {
    int i;
    double avg = 0;

    for (i=0; i<S.length; ++i) {
        switch (mode) {
        case 0: avg += S[i].Kor; break;
        case 1: avg += S[i].Eng; break;
        case 2: avg += S[i].Math; break;
        default : avg = 0; break;
        }
    }
    avg /= S.length;

    switch (mode) {
    case 0: System.out.println("Kor  Avg = " + avg); break;
    case 1: System.out.println("Eng  Avg = " + avg); break;
    case 2: System.out.println("Math Avg = " + avg); break;
    default : System.out.println("Incorrect Mode!!"); break;
    }

}
```

```java
Student.avg_mode(S, 0);
Student.avg_mode(S, 1);
Student.avg_mode(S, 2);
```

```java
public static void main(String[] args) {
    // TODO Auto-generated method stub

    Student[] S = new Student[5];

    S[0] = new Student(99, 45, 90);
    S[1] = new Student(88, 55, 80);
    S[2] = new Student(77, 65, 90);
    S[3] = new Student(66, 75, 80);
    S[4] = new Student(55, 85, 90);

    S[0].disp();
    S[1].disp();
    S[2].disp();
    S[3].disp();
    S[4].disp();

    Student.avg_mode(S, 0);
    Student.avg_mode(S, 1);
    Student.avg_mode(S, 2);
```