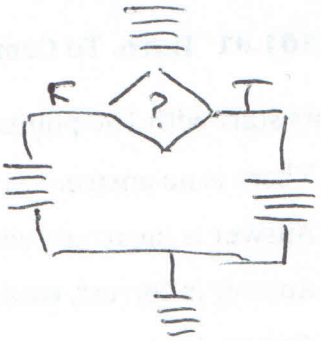
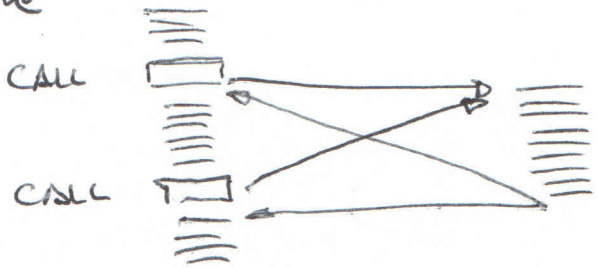
1) Sequence

2) Selection



3) Repetition

4) Module



$f(2) = 2 \cdot 2 + 3 = 7$

$f(x) = 2x + 3$

X^{y} — y = exponent, X = base →

pow(x, y)

pow(2., 3.)

8.

```
int num, base, exponent, x;

num = 1;
for (x=0; x < exponent; x++)
    num = num * base;

cout << num;
```

Functions
- Value-returning (within expres
- Void (task)

SIMPLE — 1 single value

STRUCTURED
- HOMOGENEOUS — ARRAY
- HETEROGENEOUS — STRUCT, UNION, CLASS

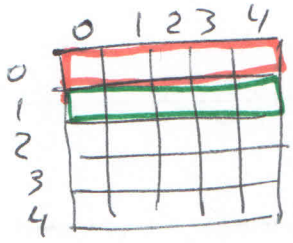
```
int x1, x2, x3, x4, x5, x6;
```

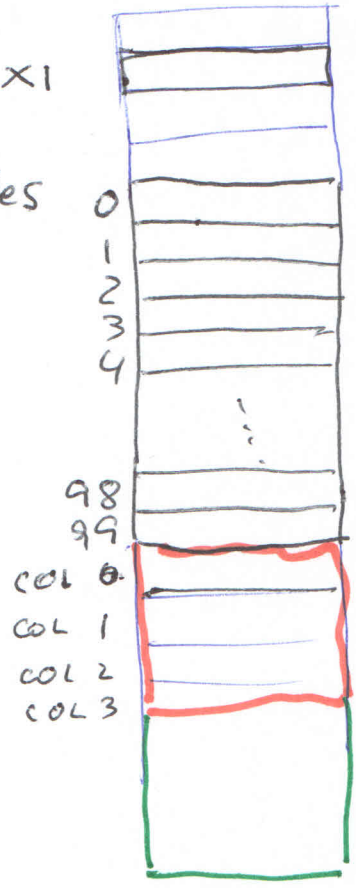
x(1) x(2) x(3)

```
const int SIZE = 100;
int grades[100];   ≡   int grades[SIZE];
```

size (constant)

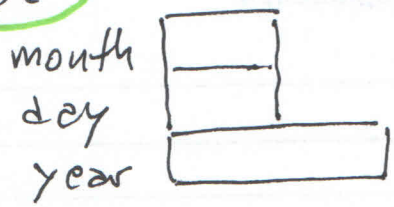
```
char letters[26];
double temperatures[317];

cout << grades[2]

cout << temp[88];

int grid[5][5];
```



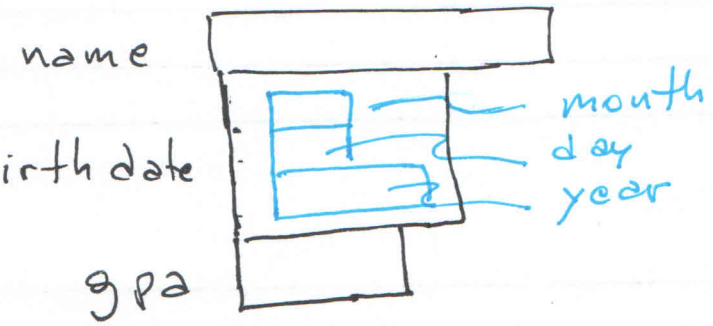


programmer data type

date_type

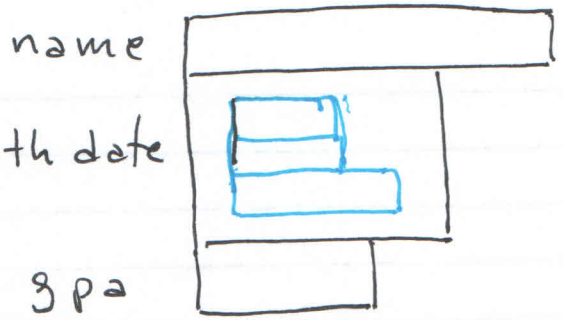


student_type ← programmer data type



variable !!!

student_type pupil;

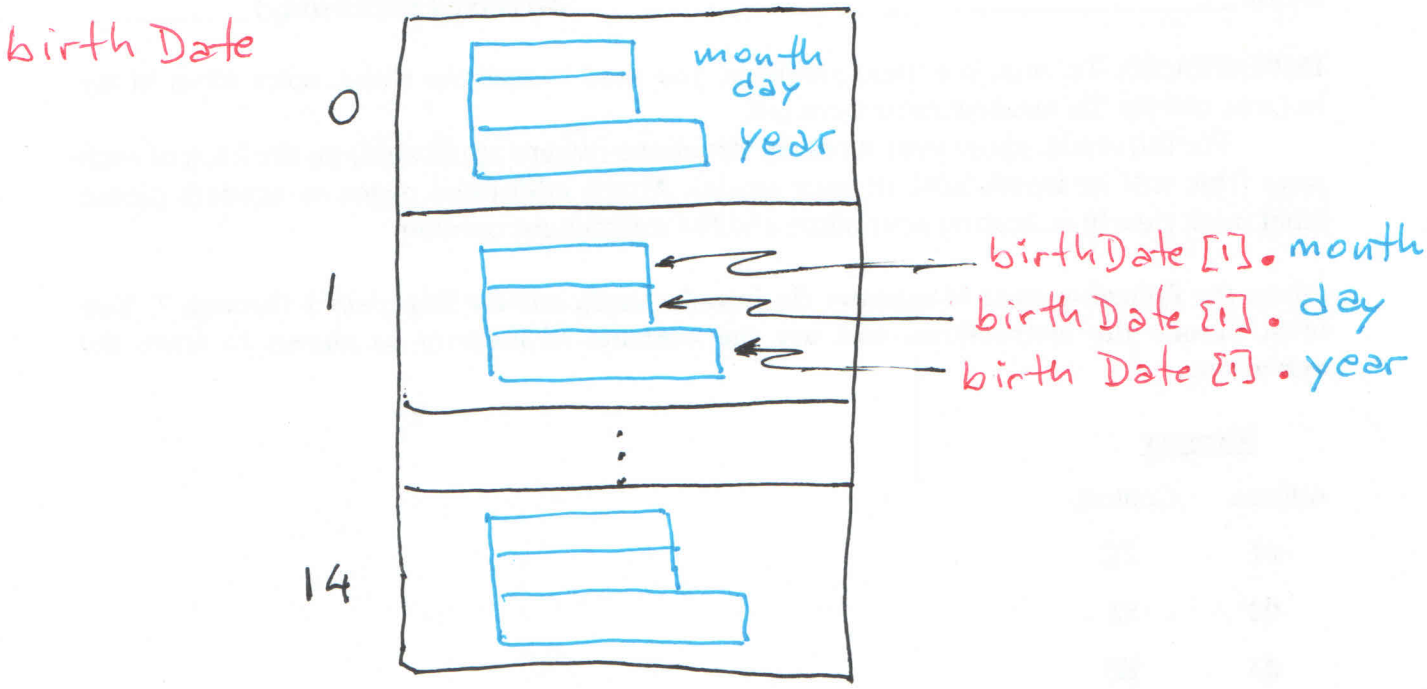


pupil.name

pupil.birthdate.month
pupil.birthdate.day
pupil.birthdate.year

pupil.gpa

```
date_type birthDate[15];
```



DATA TYPE < DOMAIN (values)
OPERATIONS

In C++ → class

class < declaration
implementation

(data members) < member variables
member functions

Members < private (default)
public

A variable of a class type is an OBJECT