Structure

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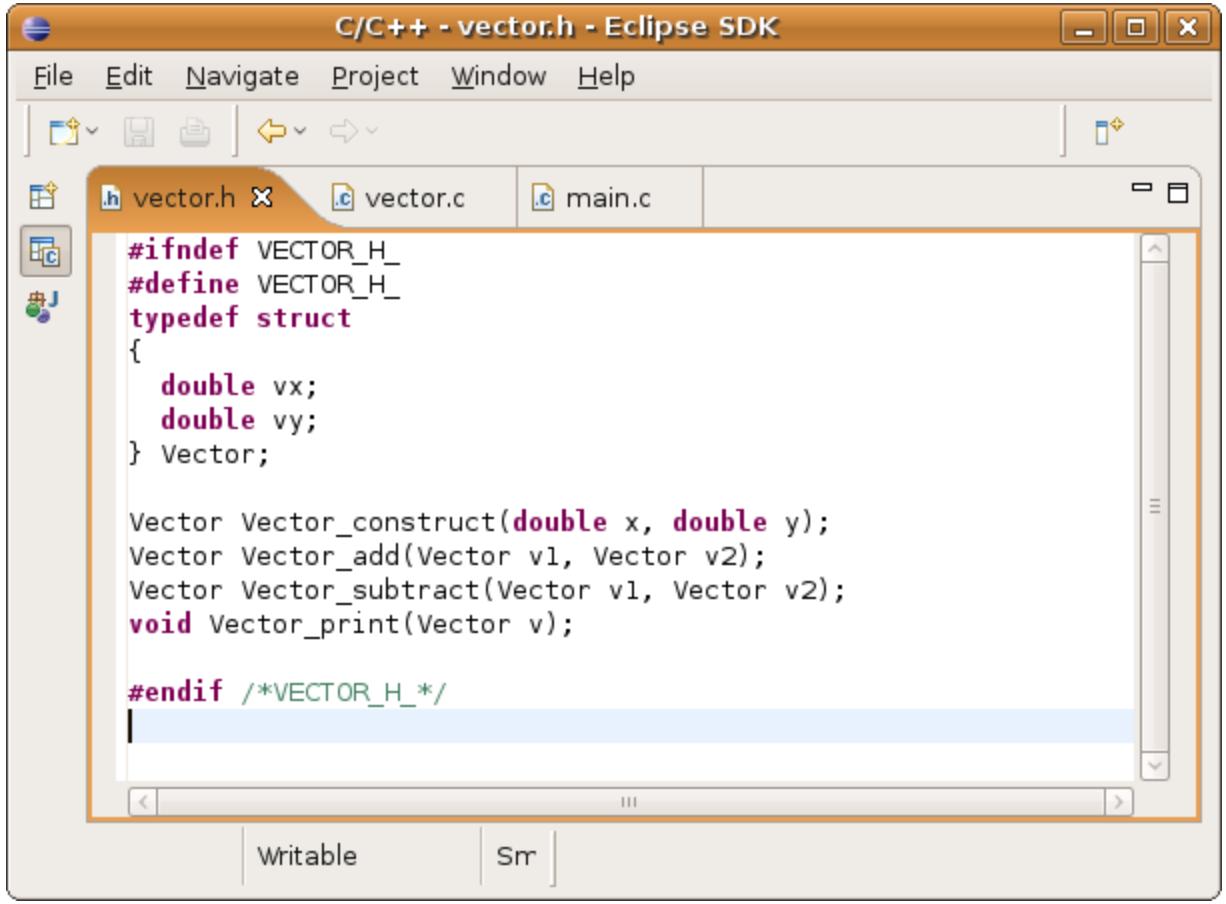
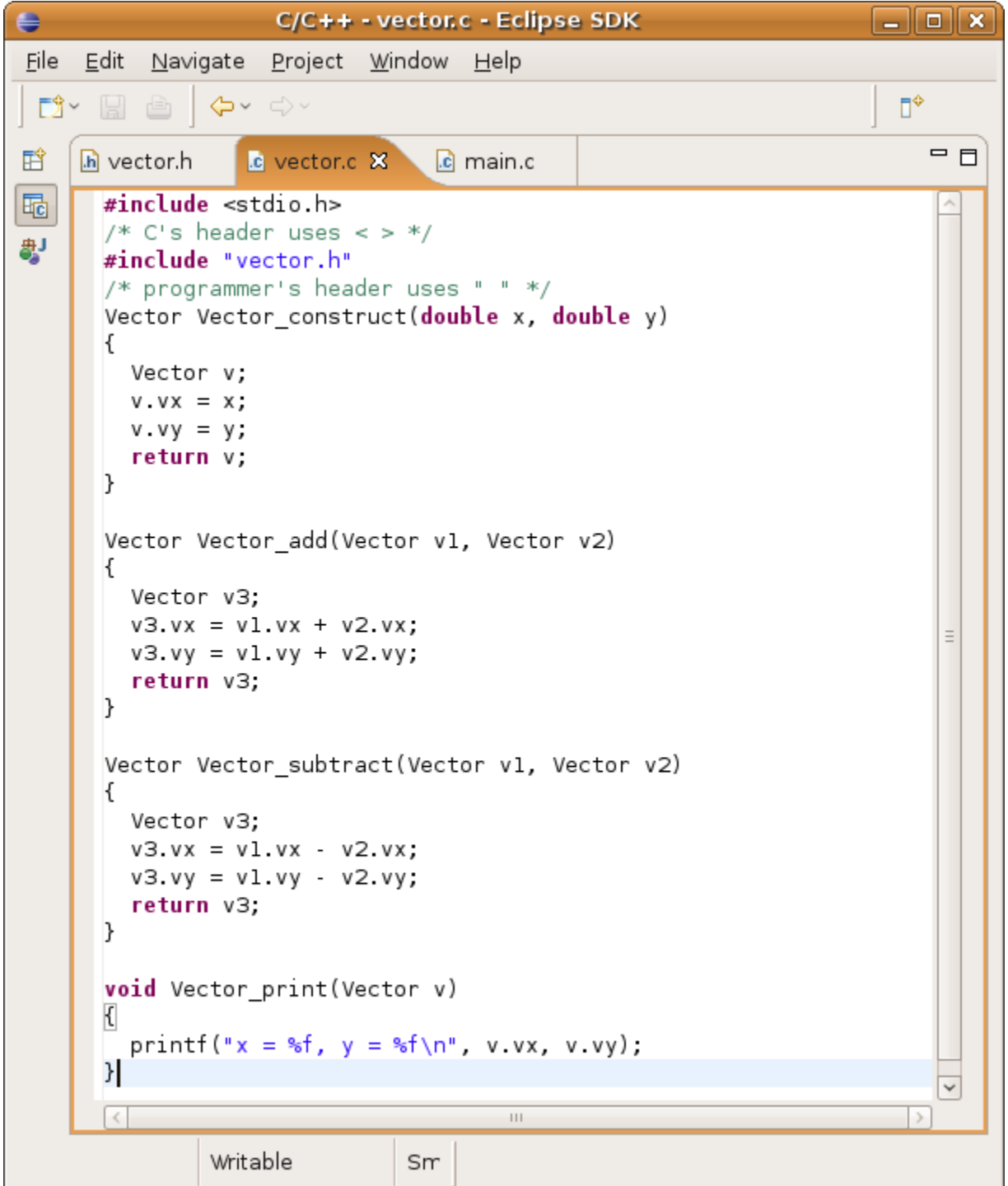
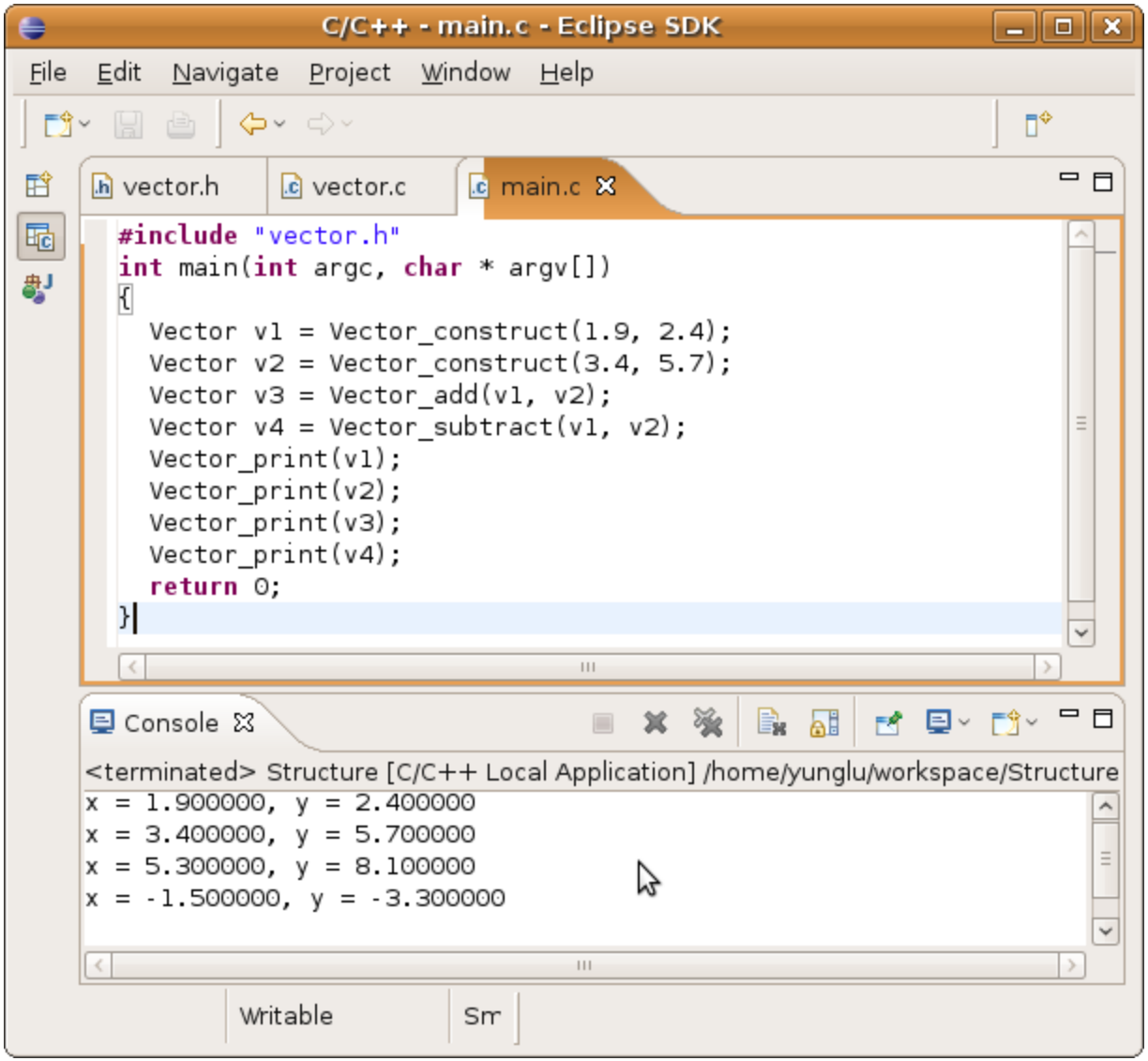
Why Structure?

- In many cases, data are related and belong to the same and more complex entity
  - name, social security number, age, address, phone number … belong to a “person”
  - school, major, courses, grades … belong to a “student”
- In many cases, these data items (also called members or attributes) have different data types
  - name, address: string
  - age: int
  - grades: float

vector.h


C/C++ - vector.h - Eclipse SDK
File Edit Navigate Project Window Help
vector.h
vector.c
main.c
#ifndef VECTOR_H_
#define VECTOR_H_
typedef struct
{
double vx;
double vy;
} Vector;
Vector Vector_construct(double x, double y);
Vector Vector_add(Vector v1, Vector v2);
Vector Vector_subtract(Vector v1, Vector v2);
void Vector_print(Vector v);
#endif /*VECTOR_H_*/
Writable


C/C++ - vector.c - Eclipse SDK
File Edit Navigate Project Window Help
vector.h
vector.c
main.c
#include <stdio.h>
/* C's header uses < > */
#include "vector.h"
/* programmer's header uses " " */
Vector Vector_construct(double x, double y)
{
Vector v;
v.vx = x;
v.vy = y;
return v;
}
Vector Vector_add(Vector v1, Vector v2)
{
Vector v3;
v3.vx = v1.vx + v2.vx;
v3.vy = v1.vy + v2.vy;
return v3;
}
Vector Vector_subtract(Vector v1, Vector v2)
{
Vector v3;
v3.vx = v1.vx - v2.vx;
v3.vy = v1.vy - v2.vy;
return v3;
}
void Vector_print(Vector v)
{
printf("x = %f, y = %f\n", v.vx, v.vy);
}
Writable
Sm


C/C++ - main.c - Eclipse SDK
File Edit Navigate Project Window Help
vector.h
vector.c
main.c
#include "vector.h"
int main(int argc, char * argv[])
{
Vector v1 = Vector_construct(1.9, 2.4);
Vector v2 = Vector_construct(3.4, 5.7);
Vector v3 = Vector_add(v1, v2);
Vector v4 = Vector_subtract(v1, v2);
Vector_print(v1);
Vector_print(v2);
Vector_print(v3);
Vector_print(v4);
return 0;
}
Console
<terminated> Structure [C/C++ Local Application] /home/yunglu/workspace/Structure
x = 1.900000, y = 2.400000
x = 3.400000, y = 5.700000
x = 5.300000, y = 8.100000
x = -1.500000, y = -3.300000
Writable