Code Examples from Lectures on extra_C

global.c

```c
#include <stdio.h>

int x;

void f(int j) {
    x = j;
}

int main(void) {
    printf("%d\n", x); // prints 0
    f(42);
    printf("%d\n", x); // prints 42
    x = 1;
    printf("%d\n", x); // prints 1
    return 0;
}
```

static.c

```c
#include <stdio.h>

int f(int j) {
    static int x;
    x = x + j;
    return x;
}
int main(void) {
    printf("%d\n", f(1)); // prints 1
    printf("%d\n", f(2)); // prints 3
    printf("%d\n", f(4)); // prints 7
    return 0;
}
```

cast.c

```c
#include <stdio.h>

int main(void) {
    int x = 42;
    int y = 11;
    double f;

    f = x / y;
    printf("42/11=%f\n", f); // prints 3.000000
    f = x/((double)y);       // convert y to a double
    printf("42/11=%f\n", f); // prints 3.818182
    return 0;
}
```

speeding.c

Read a list of driving licences from one file and a list of speeding incidents from another file; then print an infringement notice for each speeding incident.

```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

#define MAX_LICENCE  300
#define MAX_SPEEDING 500
#define MAX_PLATE     10
#define MAX_NAME      20

struct date_time {
    int day;
    int month;
    int year;
    int hour;
    int minute;
};

struct speeding {
    struct date_time   when;
    double         km_over_limit;
    char           plate[MAX_PLATE];
};

struct licence {
    char plate[MAX_PLATE];
    char name[MAX_NAME];
};

int scan_licence(struct licence  *licence, FILE *fp);
int scan_incident(struct speeding *incident, FILE *fp);
int scan_date_time(struct date_time *d, FILE *fp);
void print_date_time(struct date_time date);
void print_notices(struct speeding *spd[], struct licence *licences[]);

// Read a list of driving licences from one file
// and a list of speeding incidents from another file;
// then print an infringement notice for each speeding incident.

int main(int argc, char *argv[]) {
    if (argc < 3) {
        printf("Usage: %s <licence_file> <incident_file>\n",argv[0]);
        exit(1);
```

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