

C Versus Java

C and Java

```
#include <stdio.h>

main()
{
    printf("This is a C program\n");
}

Class simple_java_program {
    public static void main (String args[]) {
        System.out.println("This is a Java program");
    }
}
```

Hello in C and Java

```
#include <stdio.h>

main(int argc, char *argv[])
{
    printf("Hello %s\n", argv[1]);
}

Class Hello {
    public static void main (String args[]) {
        System.out.print("Hello ");
        System.out.println(args[0]);
    }
}
```

Hello in C and Java

```
#include <stdio.h>

main(int argc, char *argv[])
{
    if (argc == 2)
        printf("Hello %s\n", argv[1]);
}

Class Hello {
    public static void main (String args[]) {
        if (args.length == 1) {
            System.out.print("Hello ");
            System.out.println(args[0]);
        }
    }
}
```

C Issues

- Program structure
 - Function calls
 - Separate compilation
 - Variable scopes
- File I/O
- Pointers and arrays
- Types/structs
- Parameter and argument passing
- Memory management

Unix

- Makefiles
- Emacs
- Debugging - gdb
- File manipulation

Example Types for Storing a Relation (using C)

```
typedef struct TUPLE *TUPLELIST;
struct TUPLE {
    int StudentId;
    char Name[30];
    char Address[50];
    char Phone[8];
    TUPLELIST next;
};
typedef TUPLELIST HASHTABLE[1000];

typedef struct NODE *TREE;
struct NODE {
    char Name[30];
    TUPLELIST toTuple;
    TREE lc;
    TREE rc;
};
```