CS2318

12/06/16

JR

Compile Link Load Exec chain

static Dynamic

int A[100];

int *A;

New ( )

int A;

a = b + c;

↓

add $5, $6, $7

↓

| 6 | 7 | 5 | add |

machine code

Compiler C

↓

Assembly ← Assembly Language Programme

.s

machine code

↓ → .o

2

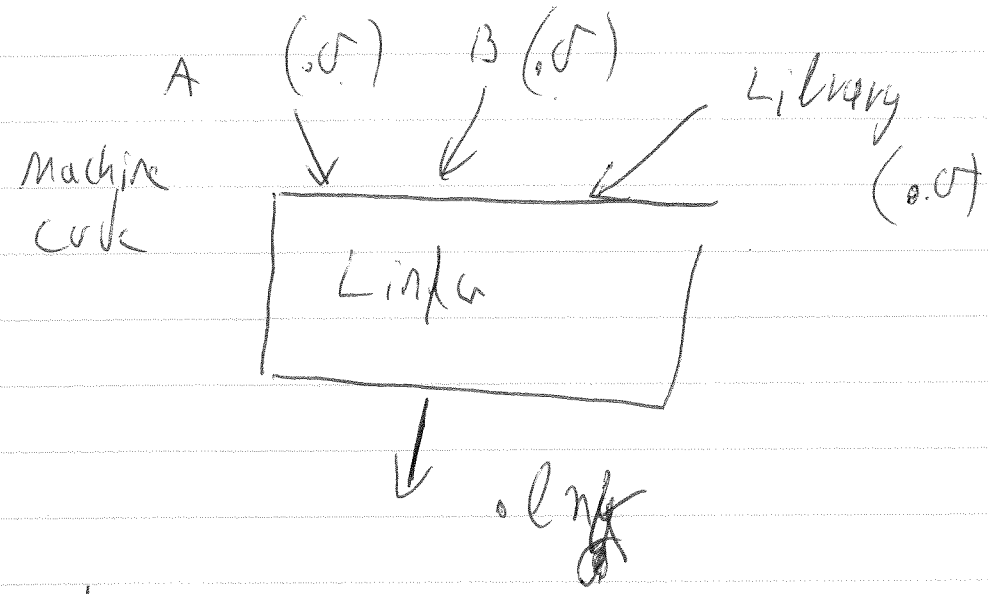
Program A

int A[100];

Program B

int A[50];

- Linker has to resolve refrences to Variables



Take care about Function call convention

3 Loader

Loading the program to M.M.

Assume Loader always load

Programs starting at address

0x00400400

---

static ↓ dynamic

lw $11, 200($12)

Program A	Program B
J out	J out
out:	out:
	J out

4 The J instruction has to be completed by the Loader

→ J out JOL file Absolute

beq $5, $6, out

Relative

Relocatable

beq $5, $6, out Loader is not concerned

→ E

E

E

E

:

out: distance of out in words from → to out

5 BEQ (Family)

J JAL

JR

Real pseudo

1) Limitations $\pm 2^{15}$ words BEQ

Segment J JAL

No Limitations J.R

JR & RS 2^{32} Bytes of Mem

2) Abs / Relative

J JAL / JR absolute

BEQ Relative

3) Conditional or conditional

BEQ etc / B J JAL JR

BLT

6

- Function call convention

  Role of registers S, T, V, as, RA

- compilation chain
- Recursive function call → stack
- Number representation
  - US
  - S+M, 1's, 2's
  - Fixed point
  - Float
- Memory Mapped / Interrupt based I/O