

Princeton University

COS 217: Introduction to Programming Systems

Machine Language for the "detecta" Program via objdump

Machine Language from Assembler

```
$ gcc -Wall -ansi -pedantic -c detecta.s
$ objdump -d detecta.o
```

```
detecta.o:      file format elf32-i386
```

```
Disassembly of section .text:
```

```
00000000 <main>:
  0:  55                push   %ebp
  1:  89 e5             mov    %esp,%ebp
  3:  e8 fc ff ff ff   call  4 <main+0x4>
  8:  83 f8 41         cmp    $0x41,%eax
  b:  75 0d            jne   1a <skip>
  d:  68 00 00 00 00   push  $0x0
 12:  e8 fc ff ff ff   call  13 <main+0x13>
 17:  83 c4 04         add   $0x4,%esp

0000001a <skip>:
 1a:  b8 00 00 00 00   mov    $0x0,%eax
 1f:  89 ec            mov    %ebp,%esp
 21:  5d              pop    %ebp
 22:  c3              ret
```

Machine Language from Linker

```
$ gcc -Wall -ansi -pedantic detecta.o -o detecta
$ objdump -d detecta
```

```
detecta:      file format elf32-i386
```

```
...
```

```
Disassembly of section .text:
```

```
...
```

```
080483a0 <main>:
 80483a0:  55                push   %ebp
 80483a1:  89 e5             mov    %esp,%ebp
 80483a3:  e8 20 ff ff ff   call  80482c8 <getchar@plt>
 80483a8:  83 f8 41         cmp    $0x41,%eax
 80483ab:  75 0d            jne   80483ba <skip>
 80483ad:  68 a4 84 04 08   push  $0x80484a4
 80483b2:  e8 31 ff ff ff   call  80482e8 <printf@plt>
 80483b7:  83 c4 04         add   $0x4,%esp

080483ba <skip>:
 80483ba:  b8 00 00 00 00   mov    $0x0,%eax
 80483bf:  89 ec            mov    %ebp,%esp
 80483c1:  5d              pop    %ebp
 80483c2:  c3              ret
```

```
...
```