

# Conditional Branch Example (Old Style)

## ■ Generation

```
shark> gcc -Og -S -fno-if-conversion control.c
```

```
long absdiff
(long x, long y)
{
    long result;
    if (x > y)
        result = x-y;
    else
        result = y-x;
    return result;
}
```

```
absdiff:
    cmpq    %rsi, %rdi    # x:y
    jle    .L4
    movq    %rdi, %rax
    subq    %rsi, %rax
    ret
.L4:      # x <= y
    movq    %rsi, %rax
    subq    %rdi, %rax
    ret
```

Register	Use(s)
%rdi	Argument <b>x</b>
%rsi	Argument <b>y</b>
%rax	Return value

# Expressing with Goto Code

- C allows `goto` statement
- Jump to position designated by label

```
long absdiff
(long x, long y)
{
    long result;
    if (x > y)
        result = x-y;
    else
        result = y-x;
    return result;
}
```

```
long absdiff_j
(long x, long y)
{
    long result;
    int ntest = x <= y;
    if (ntest) goto Else;
    result = x-y;
    goto Done;
Else:
    result = y-x;
Done:
    return result;
}
```