Plan for today

Day in the life of a Frag
- how is instruction selection performed on the body?
- how is register allocation performed?
- how are the prologue and epilogue added?

Instruction selection and register allocation

PrintSeven testing method

```java
public int testing() {
    System.out.println(7);
    return 0;
}
```

SpillAll

### Before spill

```assembly
# ExpCALL
li t36, 7
# push parameter onto stack
sw t36, 0($sp)
subu $sp, $sp, 4
jal _printint
```

### After spill

```assembly
# ExpCALL
li t37, 0
# push parameter onto stack
sw t36, 0($sp)
subu $sp, $sp, 4
jal _printint
```
Prologue and Epilogue

**Prologue**

```
.text
Foo_testing:
  Foo_testing_framesize=20
  Foo_testing_paramsNreg saves=12
  sw $ira, 0($sp)
  subs $sp, $sp, 4
  sw $fp, 0($sp)
  subs $sp, $sp, 4
  addu $fp, $sp, Foo_testing_paramsNreg saves
  subs $sp, $fp, Foo_testing_framesize

... # spilled instructions for body
```

**Epilogue**

```
# epilogue
done2:
  lw $ra, -4($fp)
  move $t0, $fp
  lw $fp, -8($fp)
  move $fp, $ap
  jv $ira
```