

Real-Time Systems D0003E

Lecture 4:
The inner workings of a kernel
(Burns/Wellings ch 7.3.1 only)

Simple thread switching (stub)

```

t_a() {
  while(1) {
    v=setjmp(a);
    if (v==0) {
      longjmp(b,1);
    } else {
      //do work;
    }
  }
}

t_b() {
  while(1) {
    v=setjmp(b);
    if (v==0) {
      longjmp(c,1);
    } else {
      //do work;
    }
  }
}

t_c() {
  while(1) {
    v=setjmp(c);
    if (v==0) {
      longjmp(a,1);
    } else {
      //do work;
    }
  }
}

```

globals:
jmp_buf* a,b,c;

locals for t_a:
v=1;

locals for t_b:
v=0;

locals for t_c:
v=0;

Simple thread switching

globals:
jmp_buf* a,m;

locals for main():
v=0;

locals for t_a:
v=1;

```

main() {
  a=malloc(...);
  m=malloc(...);
  v=setjmp(a);
  if (v!=0) {
    t_a();
  }
  SP(a)=malloc(...);
  while(1) {
    v=setjmp(m);
    if (v==0) {
      longjmp(a,1); //start t_a()
    } else {
      //do work
    }
  }
}

t_a() {
  while(1) {
    v=setjmp(a);
    if (v==0) {
      longjmp(m,1);
    } else {
      //do work;
    }
  }
}

```