

Sample of Quiz 1 (theory)

topics

name, scope, binding, control flow, types

1) name scope

This language has static scope. What this program prints?

```
def fun1():
    x = 10
    def fun2(y):
        x = 5
        print(x+y)
    print(x)
    fun2(3)
```

10
8

fun1()

2) Convert the following program into pseudo assembly language.

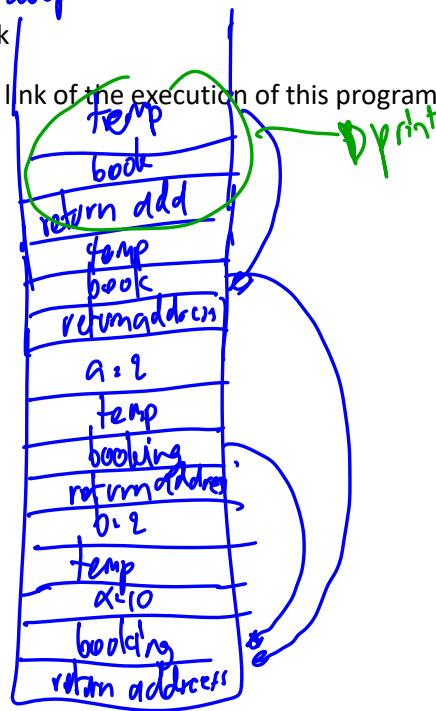
```
a = 0
do
    a += 1
while a < 10
```

mov a, 0
loop:
add a, 1
cmp a, 10
jl loop

3) stack frame and static link

draw stack frame and static link of the execution of this program.

```
def p1():
    x = 10
def p2(a):
    print(x)
def p3(b):
    p2(b)
    p3(2)
p1()
```



4) assume the following language is "dynamic" scoping. When run this program, what does it print? (of course, this program looks like C, and C has static scope. However, assume this program is "dynamic scope").

```
int x = 10;
```

```
int f() {  
    return x;  
}
```

```
int g() {  
    int x = 20;  
    return f();  
}
```

it prints 20

```
main() {  
    printf(g());  
}
```