

I. Manual Tracing

1. Manually trace and write down the output of each of the following programs.

(a) [CS1010 AY2010/11 Semester 1 Exam, Q2.a]

```
#include <stdio.h>

typedef struct {
    int i, a[4];
} mystruct_t;

int main(void) {
    mystruct_t s, t;
    s.i = 5;
    s.a[3] = 10;
    t = s;
    printf("%d %d\n", t.i, t.a[3]);
    return 0;
}
```

(b) [CS1010 AY2013/14 Semester 1 Exam, Q2.2]

```
#include <stdio.h>

typedef struct {
    char code[10];
    int num_stu;
} module_t;

void f(module_t m);

int main(void) {
    module_t list[] = {"CS1010", 300}, {"CS1231", 100};
    f(list[1]);
    printf("%s %d\n", list[1].code, list[1].num_stu);
    return 0;
}

void f(module_t m) {
    m.num_stu--;
}
```

(c) [CS1010 AY2011/2012 Semester 1 Exam, Q2c]

```
#include <stdio.h>
#include <string.h>

typedef struct {
    char name[10];
    int age;
} person;

void func1(person *ptr, char name[10], int age);
void func2(person per[]);
void func3(person per);

int main(void) {

    person data[] = {"Zhou", 25}, {"Tamil", 22},
        {"Potter", 33} };
    func1(&data[0], "Ismail", 15);
    printf("%s %d\n", data[0].name, data[0].age);
    func2(data);
    printf("%s %d\n", data[1].name, data[1].age);
    func3(data[2]);
    printf("%s %d\n", data[2].name, data[2].age);
    return 0;
}

void func1(person *ptr, char name[10], int age) {
    strcpy(ptr->name, name);
    ptr->age = age;
}

void func2(person per[]) {
    int i;
    for (i=0; i<3; i++) {
        per[i].age++;
    }
}

void func3(person per) {
    strcpy(per.name, "Ace");
    per.age--;
}
```

II. Programming

2. **[Problem Set 4 Exercise #14] Tiles**
3. **[Problem Set 4 Exercise #17] Class Roster**