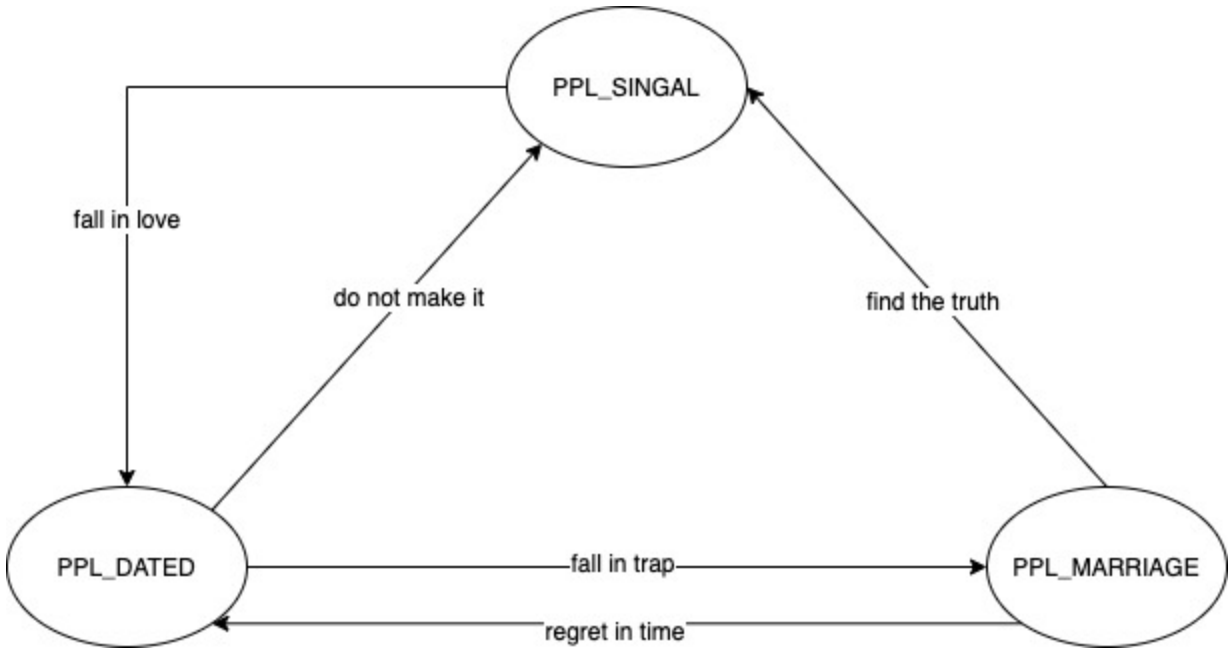
State Transition Practice

Purpose

practice state transition learned in motion detection module

State Graph



Description

Action

Action would cause the state transition to occur. However, only the right action would cause the state to occur. See below description for more detailed about the relationship between state transition and corresponding action

When State Transition Occur

There five possible state transition

- *PPL_SINGAL* to *PPL_DATED* triggered by action **fall in love**
- *PPL_DATED* to *PPL_SINGAL* triggered by action **do not make it**

- *PPL_DATED* to *PPL_MARRIAGE* triggered by action **fall in trap**
- *PPL_MARRIAGE* to *PPL_DATED* triggered by action **regret in time**
- *PPL_MARRIAGE* TO *PPL_SINGAL* triggered by action **find the truth**

Validate Thoughts

我看到在宣告array of function 時都將其型態轉換成pointer，對於這邊有些好奇，所以做了個小實驗

原先型態

```
typedef ppl_state_enum calculate_new_state_func(ppl_s *date);

calculate_new_state_func* const state_table[NUM_STATES] = {
    do_singal_state,
    do_dated_state,
    do_marriage_state
};
```

以下做了幾個實驗

1. 將 table型態的＊拿掉，其型態變成

```
typedef ppl_state_enum calculate_new_state_func(ppl_s *date);

calculate_new_state_func const state_table[NUM_STATES] = {
    do_singal_state,
    do_dated_state,
    do_marriage_state
};
```

編譯結果

```
state.c:13:32: error: declaration of ‘state_table’ as array of functions
```

2. 將table的const拿掉，其型態變成

```
typedef ppl_state_enum calculate_new_state_func(ppl_s *date);

calculate_new_state_func* state_table[NUM_STATES] = {
```

```
    do_singal_state,
    do_dated_state,
    do_marriage_state
};
```

其編譯結果正常

結論

C 不允許array of function的存在，然而在C當中我們可以宣告array of pointer，因此利用此特性，我可以宣告一個array of pointer裡面存address，而且因為function name本身所代表的即是該function所在的位址，因此可以透過直接讀取array of pointer來存function name來達到建立一個array of function的目的。