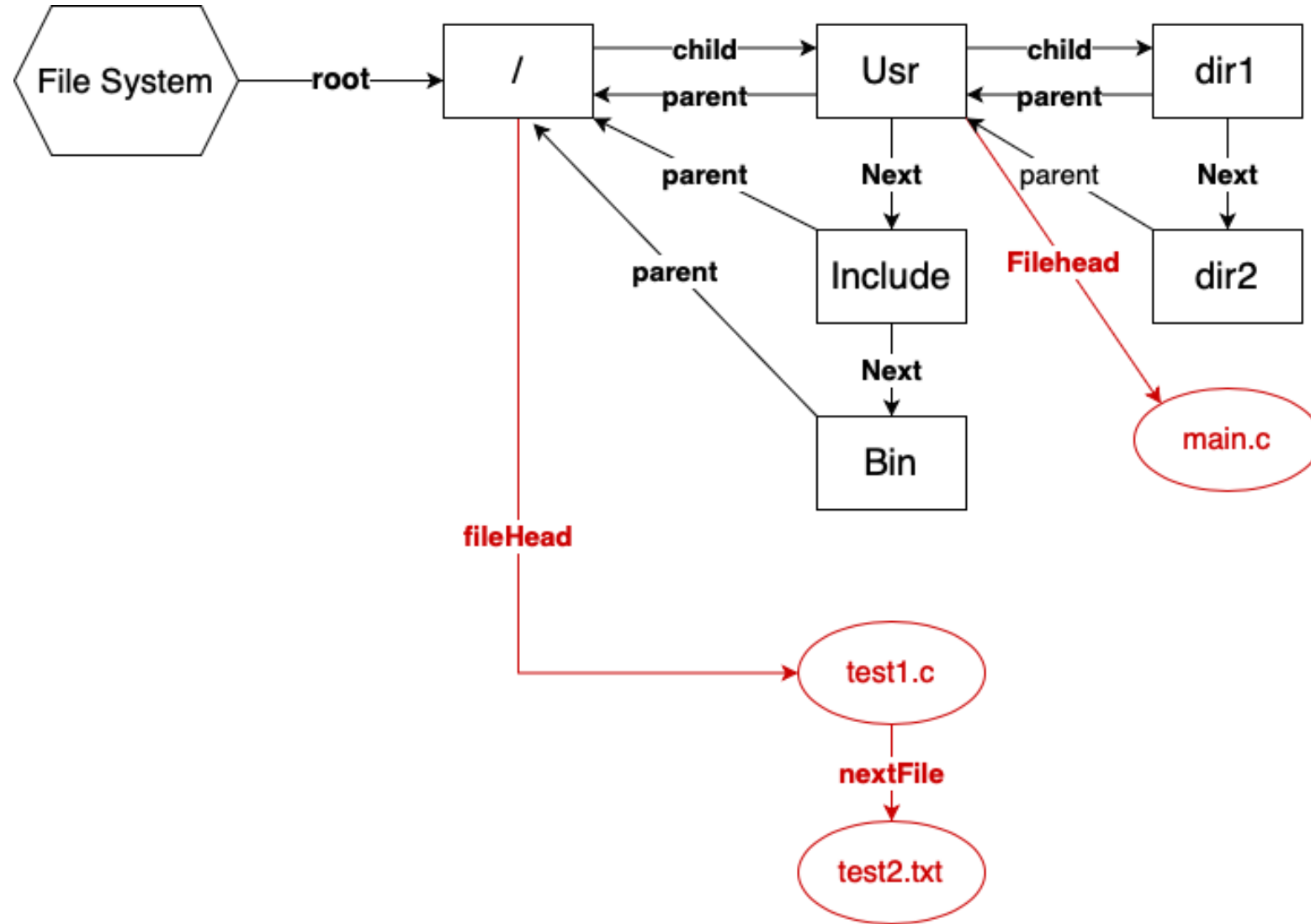# File System

111318137 電機碩二 張翔順

111C52019 人工智慧碩二 劉永薇

112368018 電子碩一 王瑞揚

Struct

Struct

```
typedef struct system
{
    tDirectory *root;
    tDirectory *workDir; //test 紀錄當前資料夾
    size_t totalSize;
    char *partition;   // 新增 partition 指標
    size_t used_part_loc;
    char currentDirectory[MAX_DIRECTORY_NAME];   //絕對路徑

}FileSystem;
```

Struct

```c
typedef struct directory
{
    char dirName[MAX_DIRECTORY_NAME];
    struct directory *child; //下一層的資料夾
    struct directory *next;    // 同一層的下個資料夾
    struct directory *parent;
    struct file *fileHead;   // 該資料夾的檔案;
}tDirectory;
```

Struct

```
typedef struct file
{
    char fileName[MAX_FILE_NAME];
    char *content;
    size_t size;
    struct file *nextFile;
    size_t start_position;
}tFile;
```

File

- data.c/ data.h:執行file system
- ui.c/ ui.h: File system 的UI介面
- Main.c:執行此副程式

Data function

```c
void file_st_pos_update_recursive(tDirectory *dirPtr, size_t up_range, size_t up_size);
void file_st_pos_update(FileSystem *fs, size_t up_range, size_t up_size);
void initializeDirectory(tDirectory *tD);
FileSystem* initializeFileSystem(size_t partitionSize);
int checkName(const char *newDirName);
void initializeFile(tFile *tF);

void ls(FileSystem *fs);
void cd(FileSystem *fs, const char *path);
void rm(FileSystem *fs, tDirectory *target_dir, const char *delFileName);
void rmdirect(FileSystem *fs, tDirectory *target_dir, const char *delPathName);
void mk(FileSystem *fs, const char *newDirName);
void put(FileSystem *fs, const char *FILE_NAME);
void get(FileSystem *fs, const char *FILE_NAME);
void cat(FileSystem *fs, const char *FILE_NAME);
void status(FileSystem *fs);
void help();
void save_directory_recursive(FILE *fp, tDirectory *dirPtr, const char *currentPath);
void save_file_system_state(const char *filename, FileSystem *fs);
tDirectory *createDirectory(const char *dirName);
void addChildDirectory(tDirectory *parent, tDirectory *child);
tDirectory *findChildDirectory(tDirectory *parent, const char *dirName);
tDirectory *find_dir(FileSystem *fs, const char *path);
void mkSubdirectories(FileSystem *fs, const char *path);
void trim_newline(char *str);
void addFileToDirectory(char *inputString, tDirectory *rootDirectory);
void load_file_system_state(FILE *fp, FileSystem *fs);
size_t readRemainingPartitionSize(FILE *fp);
```
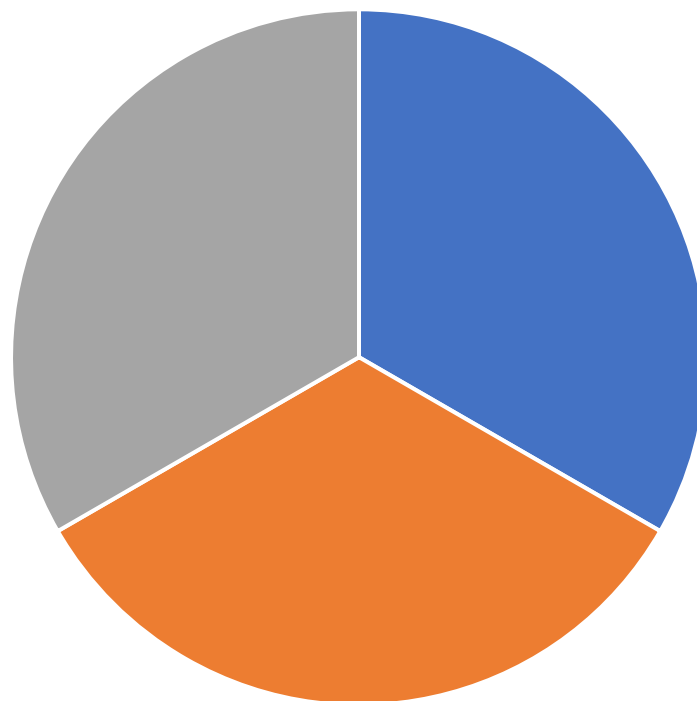
UI function

```
#ifndef UI_H
#define UI_H
#include "data.h"

void print_option_menu();
void print_command_menu();
void print_current_path(FileSystem *fs);
void appendPath(FileSystem *fs, const char *path);
void removePath(FileSystem *fs, const char *path);

#endif
```

工作分配

專案貢獻

■ 張翔順　■ 劉永薇　■ 王瑞揚

Demo 時間