C Project : Team 7 – Day 2

**Problem Statement:** Develop a datafile of billing information

**Data Structures:**

#define MAX\_CUST 50

#define STRING\_LEN 30

#define MAX\_MONTH 12

#define MIN\_YEAR 1600

#define MAX\_YEAR 2999

#define MIN\_BILLS\_PER\_DAY 20

#define MAX\_BILLS\_PER\_DAY 40

#define MIN\_BILL\_AMT 100

#define MAX\_BILL\_AMT 5000

#define MAX\_INTERVALS 11

struct date{

    int dd;

    int mm;

    int yy;

};

struct person{

    char name[STRING\_LEN];

};

struct details{

struct person p;

    double amt;

int interval; // newly added; specifies index of interval

// 8-9, 9-10, 10-11, 11-12, 12-13, 16-17, 17-18, 18-19, 19-20, 20-21, 21-22 - intervals

// int hr[MAX\_INTERVALS] = {8, 9, 10, 11, 12, 16, 17, 18, 19, 20, 21};

};

struct bill{

    struct details d[MAX\_BILLS\_PER\_DAY];

    int limit;

    struct date dt;

int total\_amt; // total of each day

int day; // newly added; specifies day of billing

// Mon-1/Tue-2/Wed-3/Thur-4/Fri-5/Sat-6/Sun-7

};

**Functions:**

* void read\_cust\_data(FILE\* fp, struct person\* p);

// Function to reach file from file and store in array of structures

* int is\_valid\_dates(const struct date\* start\_date, const struct date\* end\_date);

// Validate the date (check format and compare if end date greater than start date

* static int date\_diff(const struct date\* start\_date,const  struct date\* end\_date); //Function to find number of days between two dates.
* void generate\_bill(struct bill\* b, const struct date\* start\_date, int bill\_day, int days, struct person\* p);

// Function to generate bill by validating data

// Pass billing start day and track the day of billing

* static int get\_random\_val(int min, int max, int day)

// Function to generate random value with range(min, max).

// Maximise value for Saturday and Sunday

* static void generate\_array\_of\_unique\_indices(int\* arr, int max);

// Function to select unique index randomly.

* static void sort\_By\_interval(struct bill\* b, int day);

// Function to sort bills by intervals

* static void next\_date(struct date\* bill\_date);

// Function to get next date

* void disp\_data\_all\_dates(const struct bill\* b, int days);

// Display data of all dates; Tuesday is holiday

* void disp\_data\_by\_name(const struct bill\* b, int days, const struct person\* p);

// Display data of all persons

* void disp\_data\_by\_date(const struct bill\* b, int days, struct date cur\_date);

// Display data of specified day; Tuesday is holiday

* void disp\_data\_by\_name(const struct bill\* b, int days, char\* name);

// Display data of specified person

* void disp\_data\_all\_days(const struct bill\* b, int days);

// Display data of all days (Monday-Sunday); Tuesday is holiday

* void disp\_data\_all\_hours(const struct bill\* b, int days);

// Display data of all hours (intervals)

* static void set\_period(int\* hr1, char\* p1, int\* hr2, char\* p2);

//time is converted from 24hr format to 12hr format