/\* 1. Display current system time \*/

#include <stdio.h>

#include <time.h>

void current\_time() {

time\_t now;

time(&now);

printf("1. Current time: %s", ctime(&now));

}

/\* 2. Break time into hours, minutes, seconds \*/

#include <stdio.h>

#include <time.h>

void time\_components() {

time\_t now;

struct tm \*local;

time(&now);

local = localtime(&now);

printf("2. Time components:\n");

printf(" Hours: %d\n", local->tm\_hour);

printf(" Minutes: %d\n", local->tm\_min);

printf(" Seconds: %d\n", local->tm\_sec);

}

/\* 3. Display current date \*/

#include <stdio.h>

#include <time.h>

void current\_date() {

time\_t now;

struct tm \*local;

time(&now);

local = localtime(&now);

printf("3. Current date: %d/%d/%d\n",

local->tm\_mon + 1, local->tm\_mday, local->tm\_year + 1900);

}

/\* 4. Seconds since epoch \*/

#include <stdio.h>

#include <time.h>

void seconds\_since\_epoch() {

time\_t now;

time(&now);

printf("4. Seconds since epoch: %ld\n", now);

}

/\* 5. Calculate age from DOB \*/

#include <stdio.h>

#include <time.h>

void calculate\_age() {

struct tm dob = {0};

time\_t now;

struct tm \*current;

int year, month, day;

printf("5. Enter birth year (YYYY): ");

scanf("%d", &year);

printf("Enter birth month (1-12): ");

scanf("%d", &month);

printf("Enter birth day: ");

scanf("%d", &day);

dob.tm\_year = year - 1900;

dob.tm\_mon = month - 1;

dob.tm\_mday = day;

time(&now);

current = localtime(&now);

int age = current->tm\_year - dob.tm\_year;

if (current->tm\_mon < dob.tm\_mon ||

(current->tm\_mon == dob.tm\_mon && current->tm\_mday < dob.tm\_mday)) {

age--;

}

printf("Approximate age: %d years\n", age);

}

/\* 6. Convert seconds to hh:mm:ss \*/

#include <stdio.h>

void seconds\_to\_time() {

long seconds;

printf("6. Enter total seconds: ");

scanf("%ld", &seconds);

int h = seconds / 3600;

int m = (seconds % 3600) / 60;

int s = seconds % 60;

printf("Time: %02d:%02d:%02d\n", h, m, s);

}

/\* 7. Days between two dates (same year) \*/

#include <stdio.h>

#include <time.h>

void days\_between\_dates() {

struct tm date1 = {0};

struct tm date2 = {0};

time\_t t1, t2;

int year, month, day;

printf("7. Enter first date (YYYY MM DD): ");

scanf("%d %d %d", &year, &month, &day);

date1.tm\_year = year - 1900;

date1.tm\_mon = month - 1;

date1.tm\_mday = day;

printf("Enter second date (YYYY MM DD): ");

scanf("%d %d %d", &year, &month, &day);

date2.tm\_year = year - 1900;

date2.tm\_mon = month - 1;

date2.tm\_mday = day;

t1 = mktime(&date1);

t2 = mktime(&date2);

double diff = difftime(t2, t1) / (60 \* 60 \* 24);

printf("Days between: %.0f\n", diff);

}

/\* 8. Digital stopwatch simulation \*/

#include <stdio.h>

#include <time.h>

#include <unistd.h>

void stopwatch() {

printf("8. Stopwatch (Press Ctrl+C to stop)\n");

printf(" [MM:SS]\n");

for(int m = 0; m < 60; m++) {

for(int s = 0; s < 60; s++) {

printf("\r %02d:%02d", m, s);

fflush(stdout);

sleep(1);

}

}

}

/\* 9. Add seconds to current time \*/

#include <stdio.h>

#include <time.h>

void add\_seconds() {

time\_t now;

struct tm \*local;

int seconds;

printf("9. Enter seconds to add: ");

scanf("%d", &seconds);

time(&now);

now += seconds;

local = localtime(&now);

printf("New time: %02d:%02d:%02d\n",

local->tm\_hour, local->tm\_min, local->tm\_sec);

}

/\* 10. Compare two times \*/

#include <stdio.h>

#include <time.h>

void compare\_times() {

struct tm time1 = {0};

struct tm time2 = {0};

time\_t t1, t2;

int h, m, s;

printf("10. Enter first time (HH MM SS): ");

scanf("%d %d %d", &h, &m, &s);

time1.tm\_hour = h;

time1.tm\_min = m;

time1.tm\_sec = s;

printf("Enter second time (HH MM SS): ");

scanf("%d %d %d", &h, &m, &s);

time2.tm\_hour = h;

time2.tm\_min = m;

time2.tm\_sec = s;

t1 = mktime(&time1);

t2 = mktime(&time2);

double diff = difftime(t1, t2);

if(diff < 0) printf("First time is earlier\n");

else if(diff > 0) printf("First time is later\n");

else printf("Times are equal\n");

}