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\* DAY 20: MISCELLANEOUS UTILITY PROGRAMS

\* Each program maintains its own includes

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/\* 1. Generate random number \*/

void random\_number() {

#include <stdlib.h>

#include <time.h>

srand(time(0));

printf("1. Random number: %d\n", rand());

}

/\* 2. Basic calculator \*/

void calculator() {

#include <stdio.h>

char op;

double a, b;

printf("2. Enter operation (+, -, \*, /): ");

scanf(" %c", &op);

printf("Enter two numbers: ");

scanf("%lf %lf", &a, &b);

switch(op) {

case '+': printf("Result: %.2f\n", a + b); break;

case '-': printf("Result: %.2f\n", a - b); break;

case '\*': printf("Result: %.2f\n", a \* b); break;

case '/':

if(b != 0) printf("Result: %.2f\n", a / b);

else printf("Error: Division by zero\n");

break;

default: printf("Invalid operator\n");

}

}

/\* 3. Decimal to octal \*/

void dec\_to\_oct() {

#include <stdio.h>

int n;

printf("3. Enter decimal number: ");

scanf("%d", &n);

printf("Octal: %o\n", n);

}

/\* 4. Decimal to hexadecimal \*/

void dec\_to\_hex() {

#include <stdio.h>

int n;

printf("4. Enter decimal number: ");

scanf("%d", &n);

printf("Hexadecimal: %X\n", n);

}

/\* 5. ASCII value of character \*/

void ascii\_value() {

#include <stdio.h>

char c;

printf("5. Enter character: ");

scanf(" %c", &c);

printf("ASCII: %d\n", c);

}

/\* 6. Print ASCII table \*/

void ascii\_table() {

#include <stdio.h>

printf("6. ASCII Table (0-127):\n");

for(int i = 0; i < 128; i++) {

if(isprint(i)) printf("%3d: %c\t", i, i);

else printf("%3d: ---\t", i);

if((i+1) % 5 == 0) printf("\n");

}

}

/\* 7. Check leap year \*/

void leap\_year() {

#include <stdio.h>

int year;

printf("7. Enter year: ");

scanf("%d", &year);

if((year % 400 == 0) || (year % 100 != 0 && year % 4 == 0))

printf("%d is a leap year\n", year);

else

printf("%d is not a leap year\n", year);

}

/\* 8. Digital clock simulation \*/

void digital\_clock() {

#include <stdio.h>

#include <unistd.h>

printf("8. Digital Clock (Ctrl+C to stop):\n");

for(int h = 0; h < 24; h++) {

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

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

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

fflush(stdout);

sleep(1);

}

}

}

}

/\* 9. FizzBuzz \*/

void fizzbuzz() {

#include <stdio.h>

printf("9. FizzBuzz (1-100):\n");

for(int i = 1; i <= 100; i++) {

if(i % 15 == 0) printf("FizzBuzz ");

else if(i % 3 == 0) printf("Fizz ");

else if(i % 5 == 0) printf("Buzz ");

else printf("%d ", i);

if(i % 10 == 0) printf("\n");

}

}

/\* 10. Current date and time \*/

void current\_datetime() {

#include <stdio.h>

#include <time.h>

time\_t now;

time(&now);

printf("10. Current date/time: %s", ctime(&now));

}