Conceptual Question

1. The C programming language is flexible, versatile, and powerful. Also, there are many other programming languages based on C. It is easier to learn if you have the experience of. C is used in operating systems (Linux, Android, IOS), microcontrollers, and a wealth of other devices.

2. A compiler is a computer program (or perhaps a set of programs) that transforms source code written by a developer in to machine code.

3. A Makefile is similar to a compiler. It is a special file that contain shell commands to build code from source files. When user type “make” in shell/terminal, the commands in the makefile will be executed.

4. <math.h> This header file contains mathematical functions.

<string.h> This header file contains functions for string operations.

<time.h> This header file contains Date and Time functions.

<stdio.h> This header file contains Input and Output functions.

<locale.h> This header file contains localization functions.

5. <math.h>: sqrt(), This function calculates and returns the square root of the number argument passed.

<string.h>: strlen(), This function returns the length of the string argument passed.

<time.h>: difftime(), This function computes the difference between time arguments passed.

<stdio.h>: fread(), This function reads from the file argument passed.

<locale.h>: setlocale(), This functions sets or gets the current C locale.

Application Question

//q1

#include <stdlib.h>

#include <stdio.h>

int main (void)

{

int ar[10] = {1,2,3,4,5,6,7,8,9,10};

for (int i = 0; i< 10 ; i++)

printf("%d\n", ar[i]);

}

//q2

#include <stdlib.h>

#include <stdio.h>

int main (void)

{

double ar[5] = {1.2,5.5,2.1,3.3,3.3};

for (int i = 1; i< 5 ; i++){

if (ar[i] > ar[i-1])

printf("%f greater than %f \n", ar[i], ar[i-1]);

else if (ar[i] < ar[i-1])

printf("%f less than %f \n", ar[i], ar[i-1]);

else

printf("%f is the same as %f \n", ar[i], ar[i-1]);

}

}

//q3

#include <stdlib.h>

#include <stdio.h>

int main(void)

{

char str[] = "hello world";

int char\_num = 0;

while (str[char\_num] != '\0')

{

printf("%c", str[char\_num++]);

}

printf("\n");

}

//q4

#include <stdlib.h>

#include <stdio.h>

int main(void)

{

for (int i = 1; i <= 10; i++)

{

if ( i % 2 == 0)

{

printf ("even\n");

}

else

{

printf ("odd\n");

}

}

return 0;

}

//q5

#include <stdlib.h>

#include <stdio.h>

#include <time.h>

#include <math.h>

double euclid\_dist(int x\_one, int x\_two, int y\_one, int y\_two)

{

return sqrt(pow((x\_two - x\_one), 2) + pow((y\_two - y\_one), 2));

}

int main(void)

{

srand(time(0));

for (int i = 0; i < 10; i++)

{

int x1 = rand() % 100;

int x2 = rand() % 100;

int y1 = rand() % 100;

int y2 = rand() % 100;

double distance = euclid\_dist(x1, x2, y1, y2);

printf("(%d) x1: %d, y1: %d, x2: %d, y2: %d, Euclidean Distance: %f\n", i+1, x1, y1, x2, y2, distance);

}

return 0;

}