Operating Systems

Assignment 3

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**Question 1:**

#include<stdio.h>

#include<stdlib.h>

#include<pthread.h>

#include<unistd.h>

int counter;

char data;

void\* print()

{

printf("Thread\n");

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

putchar(data);

printf("\n");

}

}

int main() {

printf("Input character: ");

scanf("%s", &data);

printf("Input number of times to print: ");

scanf("%d", &counter);

pthread\_t thread;

pthread\_create(&thread, NULL, &print, NULL);

pthread\_join(thread, NULL);

return 0;

}

**Text

Description automatically generated**

**Question 2:**

#include<stdio.h>

#include<stdlib.h>

#include<pthread.h>

#include<unistd.h>

int counter = 1;

void\* print() {

printf("Threads\n");

int ID = pthread\_self();

int pid = getpid();

printf("This is thread %d ID is: %d\n", counter, ID);

printf("Process ID is: %d\n", pid);

counter++;

}

int main() {

pthread\_t thread[7];

for (int i = 0; i < 7; i++) {

pthread\_create(&thread[i], NULL, &print, NULL);

}

for (int i = 0; i < 7; i++) {

pthread\_join(thread[i], NULL);

}

return 0;

}

Text

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**Question 3:**

**Part a:** Error is Produced.

**Question 4:**

**Observation**: Before Modifying the code, the output shows “Hello!” and “How are you ?” 100 times each but not consecutively. They are seen and observed to be in a printing loop after one another and one string does not get displayed completely before the other one. For example, 97 “Hello!” before and then after 100 “How are you?” 3 “Hello!” are printed back again.

**Text

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**Graphical user interface, text

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**Graphical user interface, text

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**b: This time, the strings are printed simultaneously in a long number of iterations one after another till the loop comes to halt.**

#include <stdio.h>

#include <pthread.h>

#include <stdlib.h>

void\* thread1()

{

int c = 0;

pthread\_t tid3;

while (c++ < 100)

{

printf("Hello! \n");

}

pthread\_create(&tid3, NULL, thread1, NULL);

pthread\_join(tid3, NULL);

}

void\* thread2()

{

int c = 0;

pthread\_t tid4;

while (c++ < 100)

{

printf("How are you ? \n");

}

pthread\_create(&tid4, NULL, thread2, NULL);

pthread\_join(tid4, NULL);

}

int main()

{

int status;

pthread\_t tid1, tid2;

pthread\_create(&tid1, NULL, thread1, NULL);

pthread\_create(&tid2, NULL, thread2, NULL);

pthread\_join(tid1, NULL);

pthread\_join(tid2, NULL);

return 0;

}

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