Operating Systems Lab 9

Name: Ahmed Kasteer

Section: 4D

Roll number: 20F-0336

Question 1:

#include<stdio.h>

#include<stdlib.h>

#include<unistd.h>

#include<pthread.h>

int result=0,count=0;

void \*thread\_function(void \*arg) {

printf("Thread 1\n");

count++;

result=result+count;

sleep(1);

}

void \*thread\_function1(void \*arg) {

printf("Thread 2\n");

count++;

result=result+count;

sleep(1);

}

void \*thread\_function2(void \*arg) {

printf("Thread 3\n");

count++;

result=result+count;

sleep(1);

}

int main() {

pthread\_t a\_thread,b\_thread,c\_thread; //thread declaration

pthread\_create(&a\_thread, NULL, thread\_function, NULL);

pthread\_create(&b\_thread, NULL, thread\_function1, NULL);

pthread\_create(&c\_thread, NULL, thread\_function2, NULL);

//thread is created

pthread\_join(a\_thread, NULL); //process waits for thread to finish .

pthread\_join(b\_thread, NULL);

pthread\_join(c\_thread, NULL);

printf("Final value of globle variable is: %d \n",count);

printf("Result after Increment is: %d \n",result);

}

Text

Description automatically generated

Question 2:

#include<stdio.h>

#include<stdlib.h>

#include<unistd.h>

#include<pthread.h>

#include<string.h>

int result=0,count=0,i;

void \*thread\_function(void \*arg) {

printf("hello im thread %d my id is %ld \n",i, pthread\_self());

}

int main() {

pthread\_t a\_thread[4]; //thread declaration

void \*result;

for( i=1;i<=4;i++)

{

pthread\_create(&a\_thread[i], NULL, thread\_function, NULL);

}

//thread is created

for(i=1;i<=4;i++)

{

pthread\_join(a\_thread[i], NULL); //process waits for thread to finish .

}

}

Text

Description automatically generated

Question 3:

#include<stdio.h>

#include<stdlib.h>

#include<unistd.h>

#include<pthread.h>

int result=0,count=0;

void \*thread\_function(void \*arg) {

int a=10,b=5;

a=a+b;

printf("Addition :%d\n",a);

pthread\_exit("Thread 1 complete");

}

void \*thread\_function1(void \*arg) {

int a=10,b=5;

a=a-b;

printf("Subtraction :%d\n",a);

pthread\_exit("Thread 2 complete");

}

void \*thread\_function2(void \*arg) {

int a=10,b=5;

a=a\*b;

printf("Multiplication :%d\n",a);

pthread\_exit("Thread 3 complete");

}

void \*thread\_function3(void \*arg) {

int a=10,b=5;

a=a/b;

printf("Division :%d\n",a);

pthread\_exit("Thread 4 complete");

}

int main() {

pthread\_t a\_thread,b\_thread,c\_thread,d\_thread; //thread declaration

void \*result;

pthread\_create(&a\_thread, NULL, thread\_function, NULL);

pthread\_create(&b\_thread, NULL, thread\_function1, NULL);

pthread\_create(&c\_thread, NULL, thread\_function2, NULL);

pthread\_create(&d\_thread, NULL, thread\_function3, NULL);

//thread is created

pthread\_join(a\_thread, &result); //process waits for thread to finish .

printf("%s\n",(char \*)result);

pthread\_join(b\_thread, &result);

printf("%s\n",(char \*)result);

pthread\_join(c\_thread, &result);

printf("%s\n",(char \*)result);

pthread\_join(d\_thread, &result);

printf("%s\n",(char \*)result);

}

Text

Description automatically generated

Question 4:

#include<stdio.h>

#include<stdlib.h>

#include<unistd.h>

#include<pthread.h>

#include<string.h>

int result=0,count=0,i;

void \*thread\_function(void \*arg) {

printf("Thread ID %ld\n", pthread\_self());

printf("Process ID %d\n\n",getpid());

}

int main() {

pthread\_t a\_thread[4]; //thread declaration

void \*result;

for( i=1;i<=4;i++)

{

pthread\_create(&a\_thread[i], NULL, thread\_function, NULL);

}

//thread is created

for(i=1;i<=4;i++)

{

pthread\_join(a\_thread[i], NULL); //process waits for thread to finish .

}

}

Text

Description automatically generated