PRODUCER CONSUMER PROBLEM.

AIM:

PROGRAM TO IMPLEMENT THE PRODUCER AND CONSUMER PROBLEM USING C LANGUAGE.

Producer consumer problem is also known as bounded buffer problem. In this problem we have two processes, producer and consumer, who share a fixed size buffer.

Producer work is to produce data or items and put in buffer. Consumer work is to remove data from buffer and consume it.

We have to make sure that producer do not produce data when buffer is full and consumer do not remove data when buffer is empty.

ALGORITHM:

Step 1: Start

Step 2: Define the maximum buffer size.

Step 3:Enter the number of producers and consumers.

Step 4: The producer produces the job and put it in the buffer.

Step 5:The consumer takes the job from the buffer.

Step 6:If the buffer is full the producer goes to sleep.

Step 7:If the buffer is empty then consumer goes to sleep.

Step 8:Stop

Graphical user interface, application

Description automatically generated with medium confidence

PROGRAM:

Graphical user interface, text, application

Description automatically generated

Text

Description automatically generated

A picture containing chart

Description automatically generated

Graphical user interface, text, application

Description automatically generated

Text, letter

Description automatically generated

Text

Description automatically generated

CODE:

#include<stdio.h>

#include<stdlib.h>

int mutex=1;

int full=0;

int empty=10,x=0;

void producer()

{

--mutex;

++full;

--empty;

x++;

++mutex;

printf("\nProducer produces the item 1");

}

void consumer()

{

--mutex;

--full;

++empty;

x--;

++mutex;

printf("\nConsumer consumes item 1");

}

int main(){

int n;

printf("1.Producer"

"\n2.Consumer"

"\n3.Exit"

);

for(int i=1;i>0;i++){

scanf("%d",&n);

switch(n){

case 1:

if((mutex==1) && (empty!=0)){

producer();

}else{

printf("Buffer is full");

}break;

case 2:

if((mutex==1) && (full!=0)){

consumer();

}else{

printf("Buffer is empty");

}break;

case 3:

exit(0);

break;

}

}

}

RESULT:

Table

Description automatically generated Text

Description automatically generated

RESULT:

PRODUCER CONSUMER PROGRAM WAS SUCCESSFULLY IMPLEMENT USING C LANGUAGE.