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# PROGRAM TO IMPLEMENT PRODUCER CONSUMER PROBLEM USING SEMAPHORES

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CS4B 17

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**CODE:**

#include<stdio.h>

int n;

void producer();

void consumer();

int wait(int);

int signal(int);

int mutex = 1, full = 0, empty = 3, x = 0;

int main() {

printf("\n1.PRODUCER\n2.CONSUMER\n3.EXIT\n\n");

while (1) {

printf("\nENTER YOUR CHOICE : ");

scanf("%d", & n);

switch (n) {

case 1:

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

producer();

else

printf("\nBUFFER IS FULL");

break;

case 2:

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

consumer();

else

printf("\nBUFFER IS EMPTY");

break;

case 3:

return 0;

break;

}

}

return 0;

}

int wait(int s) {

return (--s);

}

int signal(int s) {

return (++s);

}

void producer() {

mutex = wait(mutex);

full = signal(full);

empty = wait(empty);

x++;

printf("\nProducer produces the item%d", x);

mutex = signal(mutex);

}

void consumer() {

mutex = wait(mutex);

full = wait(full);

empty = signal(empty);

printf("\nConsumer consumes item%d", x);

x--;

mutex = signal(mutex);

}

**OUTPUT:**

