**Semaphores**

**Program**

#include<stdio.h>

#include<stdlib.h>

int mutex=1,empty=2,full=0;

void producer();

void consumer();

int wait(int);

int signal(int);

void main()

{

int ch;

while(ch!=3)

{

printf("enter choice: 1.Producer 2.Consumer 3.exit\n");

scanf("%d",&ch);

switch(ch)

{

case 1:

{

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

{

producer();

printf("item produced\n");

}

else

{

printf("Buffer full\n");

}

break;

}

case 2:

{

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

{

consumer();

printf("item consumed\n");

}

else

{

printf("Buffer empty\n");

}

break;

}

case 3:

{

exit(0);

break;

}

}

}

}

int wait(int s)

{

s--;

return s;

}

int signal(int s)

{

s++;

return s;

}

void producer()

{

mutex=wait(mutex);

empty=wait(empty);

full=signal(full);

mutex=signal(mutex);

}

void consumer()

{

mutex=wait(mutex);

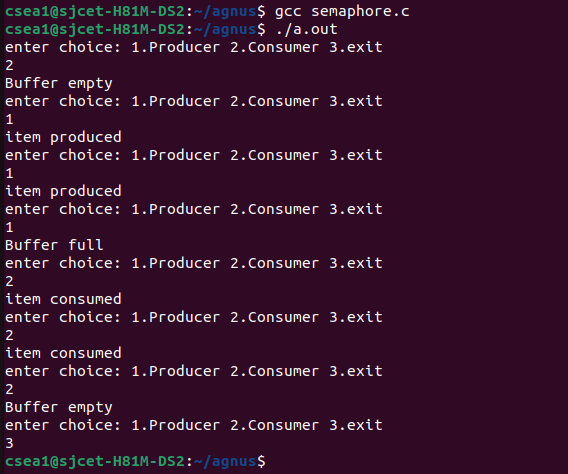
empty=signal(empty);

full=wait(full);

mutex=signal(mutex);

}

**Output**

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