**PRACTICAL-10**

**IMPLEMENTATION OF FORK & JOIN CONSTRUCT.**

#include<stdio.h>

#include<conio.h>

#include<process.h>

#include<dos.h>

int chopstick[5];

int philospher[5];

void eat(int i);

void check(void);

void display();

void menu(void);

void init(void);

void pthink(int);

int philosphers(void);

int i;

void main()

{

int philospher[5];

clrscr();

init();

menu();

}

void init(void)

{

int i;

for(i=0;i<5;i++)

{

chopstick[i]=0;

philospher[i]=0;

}

}

void menu(void)

{

int choice;

xx:

sleep(2); clrscr();

printf("\n\n\n\t Available Options Are ");

printf("\n\t 1.Display");

printf("\n\t 2.Eat");

printf("\n\t 3.Think");

printf("\n\t 4.Quit");

printf("\n\t Enter Your Choice Please : ");

scanf("%d",&choice);

switch(choice)

{

case 1 : display(); break;

case 2 : check(); break;

case 3 : i=philosphers(); pthink(i); break;

case 4 : exit(0);

default : printf("\n\t Invalid Entry. Please Try Again "); goto xx;

}

getch();

}

int philosphers(void)

{

printf("\n\t Enter Philospher No (0 to 4) :- ");

scanf("%d",&philospher[i]);

return(philospher[i]);

}

void eat(int i)

{

chopstick[i]=1;

chopstick[(i+1)%5]=1;

philospher[i]=1;

menu();

}

void check(void)

{ int ch;

i=philosphers();

if((chopstick[i]==0) && (chopstick[(i+1)%5]==0))

{

printf("\n\n\t Chopsticks are available. You can Eat.");

printf("\n\t Would you like to Eat. (1 for yes) ");

scanf("%d",&ch);

if(ch==1)

eat(i);

}

else

{

printf("\n\n\t Sorry, Chopsticks are not Available.");

}

menu();

}

void display(void)

{

int j;

j=philosphers();

if(philospher[j]==0)

printf("\n\n\t The Philospher No. %d is Thinking.",j);

else

printf("\n\n\t The Philospher No. %d is Eating.",j);

menu();

}

void pthink(int i)

{

if(philospher[i]==0)

{

printf("\n\n\t You are already Thinking........");

printf("you are free/thinking");

}

if(philospher[i]==1)

{

philospher[i]=0;

chopstick[i]=0;

chopstick[(i+1)%5]=0;

printf("you are now thinking %d",philospher[i]);

}

menu();

}