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SEC: AI & ML

CLASS ROLL NO.: 10

PROBLEM STATEMENT: Write a C program for implementing process scheduling for a CPU in multiprogramming environment in a time changing basic. Input no. of process, time taken by every process and CPU slot.

CODE:

#include <stdio.h>

#include <stdlib.h>

typedef struct node

{

struct node \*next;

int info;

int sno;

} NODE;

NODE\* insert(NODE \*start,int n)

{

static int sno=0;

NODE \*p=NULL;

p=(NODE\*)malloc(sizeof(NODE));

if(p!=NULL)

{

p->sno=++sno;

p->info=n;

if(start==NULL)

p->next=p;

else

{

p->next=start->next;

start->next=p;

}

start=p;

return start;

}

}

void display(NODE \*start)

{

if (start==NULL)

printf("List is empty\n");

else

{

NODE \*end=start;

printf("Time Taken\n");

while (start->next!=end)

{

printf("%d\n", start->info);

start=start->next;

}

printf("%d\n",start->info);

}

}

void delete(NODE \*\*p)

{

NODE \*q=\*p , \*r=NULL;

if(q->next==q)

{

free(q);

\*p=NULL;

}

else

{

r=q->next;

q->next=r->next;

free(r);

\*p=q;

}

}

void taskprocess(NODE \*\*p)

{

int timee, c=0;

printf("Enter time to allocate:");

scanf("%d", &timee);

NODE \*q = \*p;

while(q!=NULL)

{

c++;

int y= c\*timee;

NODE \*f = q->next;

f->info = (f->info)-timee;

if((f->info)<=0)

{

printf("Process-%d is completed in %d turn within %d unit time\n", f->sno,c,y);

delete(&q);

}

else

q=q->next;

}

}

int main()

{

NODE \*top=NULL;

int choice, x;

do

{

printf("OPERATION YOU NEED TO PERFORM : \n1.) INSERT\n2.) PROCESS SCHEDULING\n3.) DISPLAY\n4.) EXIT\nEnter your choice: ");

scanf("%d",&choice);

switch(choice)

{

case 1:

{

printf("Enter the number to be inserted : ");

scanf("%d",&x);

top=insert(top, x);

break;

}

case 2:

{

taskprocess(&top);

exit(0);

}

case 3:

{

display(top);

break;

}

case 4:

{

exit(0);

}

default:

{

printf("Invalid choice hence exit\n");

break;

}

}

} while(choice<=4);

}

OUTPUT:

OPERATION YOU NEED TO PERFORM :

1.) INSERT

2.) PROCESS SCHEDULING

3.) DISPLAY

4.) EXIT

Enter your choice: 1

Enter the number to be inserted : 10

OPERATION YOU NEED TO PERFORM :

1.) INSERT

2.) PROCESS SCHEDULING

3.) DISPLAY

4.) EXIT

Enter your choice: 1

Enter the number to be inserted : 10

OPERATION YOU NEED TO PERFORM :

1.) INSERT

2.) PROCESS SCHEDULING

3.) DISPLAY

4.) EXIT

Enter your choice: 1

Enter the number to be inserted : 30

OPERATION YOU NEED TO PERFORM :

1.) INSERT

2.) PROCESS SCHEDULING

3.) DISPLAY

4.) EXIT

Enter your choice: 1

Enter the number to be inserted : 40

OPERATION YOU NEED TO PERFORM :

1.) INSERT

2.) PROCESS SCHEDULING

3.) DISPLAY

4.) EXIT

Enter your choice: 3

Time Taken

40

10

10

30

OPERATION YOU NEED TO PERFORM :

1.) INSERT

2.) PROCESS SCHEDULING

3.) DISPLAY

4.) EXIT

Enter your choice: 2

Enter time to allocate:10

Process-1 is completed in 1 turn within 10 unit time

Process-2 is completed in 2 turn within 20 unit time

Process-3 is completed in 7 turn within 70 unit time

Process-4 is completed in 9 turn within 90 unit time