C++ LINKED LIST PREVIEW

Ona Nixon Kowero udom,cive onansk92@gmail.com

RECAP ON STRUCTURES

```
//icluding the header files

#include<iostream>
using namespace std;

//constructing Structure

struct results{
string name;
int marks;
char grade;
};

//Entering the main function

int main(){

//declaring an object of data type results
results s1;

//asignment of values to object s1

s1.name="ONA NIXON KOWERO";
s1.marks=100;
s1.grade='A';

//displaying output to the screen

cout<<"The following are the marks for our students"<<"\n\n";
cout<<"Name: "<<s1.name<<"\n\n";
cout<<"Marks: "<<s1.marks<<"\n\n";
cout<<"Grade: "<<s1.grade;
return 0;

}
```

LINKED LIST SKELETON:

```
#include<iostream>
using namespace std;

//creating a structure

struct node

{
      int a;
      node *next;
};

//example of creating pointers

node *head;
node *current;
node *last;

int main(){

//Asigning declared pointers to null

head=NULL;
last=NULL;
current=NULL;

cout<<head<<endl;
cout<<last<<endl;
cout<<current<<endl;

}
```

CREATING A NEW NODE

```
#include<iostream>
using namespace std;

typedef struct age{

	int a;
	age *next;

}node;

node *head,*node1,*node2;

int main(){

//creating a first node

node1=new node;
head=node1;
node1->a=10;

//creating a second node

node2=new node;
node2->a=20;
node1->next=node2;

//Outputing    data using actual nodes

cout<<node1->a<<endl;
cout<<node2->a<<endl;

//Outputing using head pointer to see if nodes are linked

cout<<head->a<<endl;
cout<<head->next->a<<endl;

}
```

TRAVESING THROUGH A LINKED LIST

```
#include<iostream>
using namespace std;
typedef struct age{
	int a;
	age *next;
}node;

node *head,*current,*node1,*node2;

int main(){

//creating a first node

node1=new node;
head=node1;
node1->a=10;

//creating a second node

node2=new node;
node2->a=20;
node1->next=node2;
node2->next=NULL;

//TRAVESING through a list

current=head;

while(current!=NULL){

cout<<current->a<<endl;
current=current->next;

}

}
```

INSERTING A NODE IN A LINKED LIST

```
#include<iostream>
using namespace std;
typedef struct age{
	int a;
	age *next;
}node;

node *head,*current,*node1,*node2,*ona;

int main(){

//creating a first node

node1=new node;
head=node1;
node1->a=10;

//creating a second node

node2=new node;
node2->a=20;
node1->next=node2;
node2->next=NULL;

// insert node ona between node 1 and node 2
ona=new node;
ona->a=15;
ona->next=node1->next;
node1->next=ona;

//TRAVERSING

current=head;
while(current!=NULL)
{

cout<<current->a<<endl;
current=current->next;

}

}
```

DELETING A NODE IN A LINKED LIST

```
#include<iostream>
using namespace std;
typedef struct age{
	int a;
	age *next;
}node;

node *head,*current,*node1,*node2,*ona,*q;

int main(){
//creating a first node

node1=new node;
head=node1;
node1->a=10;

//creating a second node

node2=new node;
node2->a=20;
node1->next=node2;
node2->next=NULL;

//insertion of    node ona between node 1 and node 2
ona=new node;
ona->a=15;
ona->next=node1->next;
node1->next=ona;

//deleting node ona with age of 15

q=head->next;
head->next=ona->next;
delete q;

//displaying the output
current=head;
while(current!=NULL){
cout<<current->a<<endl;
current=current->next;
}

}
```

PRINT NUMBER 1 TO 10 IN A LINKED LIST

```
#include<iostream>
using namespace std;
typedef struct age{
      int a;
      age *next;
}node;

node *head,*current,*node1[10];

int main(){

//creating nodes
for(int i=1; i<=10; i++){
node1[i]=new node;
node1[i]->a=i;
}

//linking nodes

head=node1[1];

for(int i=1; i<=10; i++){
     if(i<10){
     node1[i]->next=node1[i+1];
           }
      else{
      node1[i]->next=NULL;
      }
}


current=head;
while(current!=NULL){
cout<<current->a<<endl;
current=current->next;
}

}
```

SAVE THE (n) STUDENTS RECORDS IN A LINKED LISTS

```
#include<iostream>
using namespace std;

typedef struct student{

	string name;
	char gender;
	int age;

	student *next;

}node;

node *head,*current,*node1[10];

int main(){

//number of students to be recorded is the user choice

int number;
cout<<"Enter the number of students in your class"<<endl;
cin>>number;

//creating nodes

for(int i=0; i<number; i++){

node1[i]=new node;

cout<<"Enter the name of the "<<i+1<<" Student"<<endl;

cin>>node1[i]->name;

cout<<"Enter the gender of "<<node1[i]->name<<endl;

cin>>node1[i]->gender;

cout<<"Enter the age of "<<node1[i]->name<<endl;

cin>>node1[i]->age;

}
```

```
//linking nodes

head=node1[0];

for(int i=0; i<number; i++){

     if(i < (number-1)){

     node1[i]->next=node1[i+1];

           }
      else{

      node1[i]->next=NULL;
     }
}

cout<<endl;

cout<<endl;

cout<<"OUTPUT"<<endl;

cout<<endl;

current=head;

while(current!=NULL){

cout<<"name:  "<<current->name<<"  "<<"gender:  "<<current->gender<<"  "<<"age:
"<<current->age<<endl;

current=current->next;

}

return 0;

}
```

----------END ----------