

- Latihan Program DLLC dengan Head dan Tail dikombinasi dengan transaksi
- Untuk Tampilan dapat dimodifikasi sebaik mungkin
- Pastikan program ini berjalan dgn baik, sehingga bisa digunakan utk contoh UAS

Contoh input



```
#include <stdio.h>
#include <conio.h>
#include <iostream.h>
#include <iomanip.h>
```

struct TNode

```
{
    int npp;
    char nama[20];
    int gol,gajipokok,gajikotor,tunjangan;
    TNode *prev;
    TNode *next;
};

TNode *head = NULL;
TNode *tail = NULL;
```

int isEmpty()

```
{
    if(tail==NULL)
        return 1;
    else
        return 0;
}
```

void tambahDepan ()

```
{
    TNode *temp;
    temp = new TNode;
    // masukkan data.....
```

```

temp = new TNode;
clrscr();
cout << "Isikan Data Sempul Baru\n";
cout << "=====\\n";
cout << "NPP : "; cin >> temp->npp;
cout << "Nama : "; gets(temp->nama);
cout << "Gol [1/2/3] : "; cin >> temp->gol;

if ( temp->gol == 1 )
{
temp->gajipokok = 1000000;
}
else if ( temp->gol == 2 )
{
temp->gajipokok = 1500000;
}
else if ( temp->gol == 3 )
{
temp->gajipokok = 2000000;
}
else
{
cout<<"Golongan Salah!";
}

cout<<"Gaji Pokok : "; cout <<temp->gajipokok;
cout<<"\\nTunjangan : "; cin>>temp->tunjangan;
temp->gajikotor=temp->gajipokok+temp->tunjangan;
cout<<"Gaji Kotor :";cout<<temp->gajikotor;
temp->prev = temp;
temp->next = temp;
cout << endl;

if(isEmpty()==1){
head=temp;
tail=temp;
head->next = head;
head->prev = head;
tail->next = tail;
tail->prev = tail;
}
else {
temp->next = head;
head->prev = temp;
head = temp;
head->prev = tail;
tail->next = head;
}
cout<<"Data masuk\\n";

```

```

    getch();
}

void tambahBelakang(){
TNode *temp;
temp = new TNode;
temp->next = temp;
temp->prev = temp;
clrscr();

    cout << "Isikan Data Simpul Baru\n";
    cout << "=====\\n";
    cout << "NPP : "; cin >> temp->npp;
    cout << "Nama   : "; gets(temp->nama);
    cout << "Gol [1/2/3] : "; cin >> temp->gol;

    if ( temp->gol == 1 )
    {
        temp->gajipokok = 1000000;

        }
    else if ( temp->gol == 2 )
    {
        temp->gajipokok = 1500000;

        }
    else if ( temp->gol == 3 )
    {
        temp->gajipokok = 2000000;

        }
    else
    {
        cout<<"Golongan Salah!";

        }
    cout<<"\\nGaji Pokok : "; cout <<temp->gajipokok;
    cout<<"\\nTunjangan : "; cin>>temp->tunjangan;
    temp->gajikotor=temp->gajipokok+temp->tunjangan;

    temp->prev = temp;
    temp->next = temp;
    cout << endl;

    if(isEmpty()==1)
    {
        head=temp;
        tail=temp;
    }
}

```

```

        head->next = head;
        head->prev = head;
        tail->next = tail;
        tail->prev = tail;
    }
    else {
        tail->next = temp;
        temp->prev = tail;
        tail = temp;
        tail->next = head;
        head->prev = tail;
    }
    cout<<"Data masuk\n";
}

```

```

void hapusDepan(){
TNode *hapus;
int d;
hapus=head;
if (isEmpty()==0){
    if(head != tail)
    {
        hapus = head;
        d = hapus->npp;
        head = head->next;
        tail->next = head;
        head->prev = tail;
        delete hapus;
    }
    else
    {
        d = head->npp;
        head = NULL;
        tail = NULL;
    }
    cout<<d<<" terhapus\n";
}
else
cout<<"Masih kosong\n";
}

```

```

void hapusBelakang(){
TNode *hapus;
int d;
if (isEmpty()==0){
    if(head != tail){
        hapus = tail;

```

```

        d = hapus->npp;
        tail = tail->prev;
        tail->next = head;
        head->prev = tail;
        delete hapus;
    }
    else
    {
        d = head->npp;
        head = NULL;
        tail = NULL;
    }
    cout<<d<<" terhapus\n";
}
else
    cout<<"Masih kosong\n";
}

```

```

void tampil(){
TNode *temp;
temp = head;

if(isEmpty()==0){
    do{
        clrscr;

        cout <<" ";

                cout << "NPP : " << temp->npp;
                cout << ", nama : " << temp->nama;
                cout << ", Gol : " << temp->gol;
        cout << ",Gapok : " << temp->gajipokok;
        cout << ",Tunjangan:" << temp->tunjangan;
        cout << ",Gator : " << temp->gajikotor;

                cout << endl;
        temp=temp->next;
    }
    while(temp!=tail->next);

        cout<<endl;
    } else cout<<"Masih kosong\n";
    getch();
}

```

```

void clear(){
    TNode *bantu,*hapus;

```

```

        if (isEmpty()==0){
            bantu = head;
            while(bantu->next!=head){
                hapus = bantu;
                bantu = bantu->next;
                delete hapus;
            }
            head = NULL;
        }
    }

//program utama .....
void main()
{
    int pilih;
    do
    {
        //Tampilan menu.....
        clrscr();
        cout << "-----\n"
              << " Menu Pilihan (DLLC)\n"
              << "-----\n"
              << " [1] Tambah Depan \n"
              << " [2] Tambah Belakang \n"
              << " [3] Hapus Depan \n"
              << " [4] Hapus Belakang \n"
              << " [5] Cetak Linked List \n"
              << " [6] Keluar \n\n"
              << "-----\n"
              << "Masukkan pilihan : "; cin >> pilih;

        switch (pilih)
        {
            case 1:
                tambahDepan();
                break;

            case 2:
                tambahBelakang();
                break;

            case 3:
                hapusDepan();
                break;

            case 4:
                hapusBelakang();
                break;

            case 5:
                tampil();
                break;

            default:

```

```
        cout << "Pilihan tidak tersedia ! ";  
        break;  
    }  
} while (pilih != 6);  
}
```