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#include <iostream>
#include <windows.h>
#include <conio.h>

using namespace std;

HANDLE console = GetStdHandle(STD_OUTPUT_HANDLE);
COORD CursorPosition;

void gotoxy(int x, int y) {
    CursorPosition.X = x;
    CursorPosition.Y = y;
    SetConsoleCursorPosition(console, CursorPosition);
}

string username, password;

void login() {
    gotoxy(30,10);cout<<"LOGIN";
    gotoxy(25,12);cout<<"Username : "<<endl;
    gotoxy(25,13);cout<<"Password : ";
    gotoxy(36,12);getline(cin, username);
    gotoxy(36,13);getline(cin, password);
}

int banyak_mhs = 0, banyak_matkul = 0;
#define max 200
string nama[max];
string nim[max];
string kelas[max];
string matkul[max];
float nilai[max][max];

void input() {
    do{
        int pilihan;
        system("cls");
        cout<<"Halaman Tambah Data\n";
        cout<<"=====\n";
        cout<<"1. Tambah Data Mahasiswa\n";
        cout<<"2. Tambah Data Mata Kuliah\n";
        cout<<"3. Tambah Data Nilai Mahasiswa\n";
        cout<<"4. Kembali Ke Menu Utama\n";
        cout<<"=====\n";
        cout<<"Masukkan Pilihan : "; cin>>pilihan;
        if (pilihan == 1) {
            system("cls");
            int n;
            cout<<"Masukan Banyaknya Data Yang Ingin Diinput : "; cin>>n;
            for(int i = 0; i < n; i++) {
                cin.ignore();
                system("cls");
                banyak_mhs += 1;
                cout<<"Data Ke - "<<banyak_mhs<<"\n\n";
            }
        }
    } while (true);
}

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        cout<<"Masukkan Nama   : \n";
        cout<<"Masukkan Nim    : \n";
        cout<<"Masukkan Kelas   : \n";
        gotoxy(17,2); getline(cin, nama[banyak_mhs - 1]);
        gotoxy(17,3); getline(cin, nim[banyak_mhs - 1]);
        gotoxy(17,4); getline(cin, kelas[banyak_mhs - 1]);
        system("cls");
        for(int j = 0; j < banyak_mhs; j++) {
            if(nim[j-1] == nim[banyak_mhs-1]) {
                cout<<"Data Nim " << nim[banyak_mhs-1] << " Sudah Ada";
                banyak_mhs -= 1;
                cin.get();
                break;
            } else if (j == banyak_mhs - 1) {
                cout<<"Data Nim " << nim[banyak_mhs - 1] << " Berhasil
Diinput";
                cin.get();
            }
        }
    }
} else if (pilihan == 2) {
    system("cls");
    int n;
    cout<<"Masukkan Jumlah Matkul : "; cin>>n;
    for(int i = 0; i < n; i++) {
        banyak_matkul += 1;
        cout<<"Masukkan Mata Kuliah Ke " << banyak_matkul << " : ";
        cin>>matkul[banyak_matkul - 1];
    }
} else if (pilihan == 3) {
    system("cls");
    if (banyak_mhs > 0 and banyak_matkul > 0) {
        int n;
        cout<<"\tData Mahasiswa\n";
        cout<<"\t===== \n";
        for(int i = 0; i < banyak_mhs; i++) {
            cout<<i+1<<" ". << nama[i] << endl;
        }
        cout<<"Masukkan Pilihan : "; cin>>pilihan;
        n = pilihan - 1;
        system("cls");
        cout<<"Input Nilai " << nama[n] << endl;
        for(int i = 0; i < banyak_matkul; i++) {
            cout<<"Masukkan Nilai " << matkul[i] << " = ";
            cin>>nilai[n][i];
        }
    } else if (banyak_matkul > 0 and banyak_mhs == 0) {
        cout<<"Data Mahasiswa Masih Kosong";
        cin.get(); cin.get();
    } else if (banyak_matkul == 0 and banyak_mhs > 0) {
        cout<<"Data Mata Kuliah Masih Kosong";
        cin.get(); cin.get();
    } else {
        cout<<"Data Mahasiswa Dan Mata Kuliah Masih Kosong";
    }
}

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        cin.get(); cin.get();
    }

    }else if (pilihan == 4) {
        break;
    }
    }while (true);
}

void lihat() {
    do{
        int pilihan;
        system("cls");
        cout<<"Halaman Semua Data\n";
        cout<<"=====\n";
        cout<<"1. Data Mahasiswa dan Nilai Mahasiswa\n";
        cout<<"2. Data Mata Kuliah\n";
        cout<<"3. Kembali Ke Menu Utama\n";
        cout<<"=====\n";
        cout<<"Masukkan Pilihan : "; cin>>pilihan;
        if (pilihan == 1) {
            system("cls");
            if (banyak_mhs > 0 and banyak_matkul > 0) {
                cout<<"\tData Mahasiswa\n";
                cout<<"\t=====\n";
                for(int i = 0; i < banyak_mhs; i++) {
                    cout<<i+1<<" . "<<nama[i]<<endl;
                }
                cout<<"Masukkan Pilihan : "; cin>>pilihan;
                int n = pilihan - 1;
                float total = 0, rata_rata;
                system("cls");
                cout<<"Data Mahasiswa\n";
                cout<<"+++++++\n";
                cout<<"| Nama Mahasiswa | Nim | Kelas |\n";
                cout<<"+++++++\n";
                cout<<"| "<<nama[n];
                gotoxy(28,4); cout<<"| "<<nim[n];
                gotoxy(42,4); cout<<"| "<<kelas[n];
                gotoxy(50,4); cout<<"|\n";
                cout<<"+++++++\n";
                cout<<endl;
                cout<<"Data Mata Kuliah\n";
                cout<<"+++++\n";
                cout<<"| NO | Mata Kuliah | Nilai |\n";
                cout<<"+++++\n";
                int i = 0;
                for(i; i < banyak_matkul; i++) {
                    cout<<"| "<<i+1;
                    gotoxy(5,i+11); cout<<"| "<<matkul[i];
                    gotoxy(27,i+11); cout<<"| "<<nilai[n][i];
                    gotoxy(37,i+11); cout<<"|\n";
                    total += nilai[n][i];
                }
            }
        }
    }while (true);
}

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        rata_rata = total / banyak_matkul;
        cout<<" +-----+-----+\n";
        cout<<"|          Jumlah";
        gotoxy(27,i+12); cout<<"|          "<<total;
        gotoxy(37,i+12); cout<<"|\n";
        cout<<" +-----+-----+\n";
        cout<<"|          Rata-Rata";
        gotoxy(27,i+14); cout<<"|          "; printf("%.2f",rata_rata);
        gotoxy(37,i+14); cout<<"|\n";
        cout<<" +=====+=====+\n";
        cin.get();cin.get();
    }else if (banyak_matkul > 0 and banyak_mhs == 0) {
        cout<<"Data Mahasiswa Masih Kosong";
        cin.get(); cin.get();
    }else if (banyak_matkul == 0 and banyak_mhs > 0) {
        cout<<"Data Mata Kuliah Masih Kosong";
        cin.get(); cin.get();
    }else {
        cout<<"Data Mahasiswa Dan Mata Kuliah Masih Kosong";
        cin.get(); cin.get();
    }
}
}else if (pilihan == 2) {
    system("cls");
    if(banyak_matkul > 0) {
        cout<<"\tData Mata Kuliah\n";
        cout<<"\t=====\n";
        for(int i = 0; i < banyak_matkul; i++) {
            cout<<i+1<<" . "<<matkul[i]<<endl;
        }
        cin.get(); cin.get();
    } else {
        cout<<"Data Mata Kuliah Masih Kosong";
        cin.get(); cin.get();
    }
}
}else if (pilihan == 3) {
    break;
}
}while (true);
}

void edit() {
    do{
        int pilihan;
        system("cls");
        cout<<"Halaman Edit Data\n";
        cout<<"=====\n";
        cout<<"1. Edit Identitas Mahasiswa\n";
        cout<<"2. Edit Mata Kuliah\n";
        cout<<"3. Edit Nilai Mahasiswa\n";
        cout<<"4. Kembali Ke Menu Utama\n";
        cout<<"=====\n";
        cout<<"Masukkan Pilihan : "; cin>>pilihan;
        if (pilihan == 1) {
            system("cls");

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if(banyak_mhs > 0) {
    cout<<"\tData Mahasiswa\n";
    cout<<"\t=====\n";
    for(int i = 0; i < banyak_mhs; i++) {
        cout<<" " <<i+1<<" ". <<nama[i]<<endl;
    }
    cout<<"Masukkan Pilihan : "; cin>>pilihan;
    system("cls");
    int n = pilihan - 1;
    cout<<"Data Sebelumnya\n";
    cout<<" +=====+=====+=====+\n";
    cout<<" | Nama Mahasiswa | Nim | Kelas |\n";
    cout<<" +=====+=====+=====+\n";
    cout<<" | " <<nama[n];
    gotoxy(28,4); cout<<" | " <<nim[n];
    gotoxy(42,4); cout<<" | " <<kelas[n];
    gotoxy(50,4); cout<<" |\n";
    cout<<" +=====+=====+=====+\n";
    cout<<" Masukkan Data Baru\n";
    cin.ignore();
    cout<<" Masukkan Nama : "; getline(cin, nama[n]);
    cout<<" Masukkan Nim : "; getline(cin, nim[n]);
    cout<<" Masukkan Kelas : "; getline(cin, kelas[n]);
    cin.get(); cin.get();
} else {
    cout<<"Data Mahasiswa Masih Kosong";
    cin.get(); cin.get();
}
} else if (pilihan == 2) {
    system("cls");
    if(banyak_matkul > 0) {
        cout<<" Data Mata Kuliah\n";
        cout<<" =====\n";
        for(int i = 0; i < banyak_matkul; i++) {
            cout<<i+1<<" ". <<matkul[i]<<endl;
        }
        cout<<" Masukkan Pilihan Yang Akan Di Edit : "; cin>>pilihan;
        int n = pilihan - 1;
        cout<<endl<<endl;
        cout<<"Masukkan Mata Kuliah : "; cin>>matkul[n];
    } else {
        cout<<"Data Mata Kuliah Masih Kosong";
        cin.get(); cin.get();
    }
} else if (pilihan == 3) {
    system("cls");
    if(banyak_mhs > 0 and banyak_matkul > 0) {
        cout<<" Data Mahasiswa\n";
        cout<<" =====\n";
        for(int i = 0; i < banyak_mhs; i++) {
            cout<<i+1<<" ". <<nama[i]<<endl;
        }
        cout<<" Masukkan Pilihan : "; cin>>pilihan;
        system("cls");
    }
}

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        int n = pilihan - 1;
        cout<<"Data Sebelumnya\n";
        cout<<"+++++=====+\n";
        cout<<"| NO |      Mata Kuliah      | Nilai | \n";
        cout<<"+++++=====+\n";
        for(int i = 0; i < banyak_matkul; i++) {
            cout<<"| " << i+1;
            gotoxy(5,i+4); cout<<"| " << matkul[i];
            gotoxy(27,i+4); cout<<"| " << nilai[n][i];
            gotoxy(37,i+4); cout<<"| \n";
        }
        cout<<"+++++=====+\n";
        cout<<endl;
        for(int i = 0; i < banyak_matkul; i++){
            cout<<" Masukkan Nilai " << matkul[i]<<" : ";
            cin>>nilai[n][i];
        }
        cin.get(); cin.get();
    }else if (banyak_matkul > 0 and banyak_mhs == 0) {
        cout<<"Data Mahasiswa Masih Kosong";
        cin.get(); cin.get();
    }else if (banyak_matkul == 0 and banyak_mhs > 0) {
        cout<<"Data Mata Kuliah Masih Kosong";
        cin.get(); cin.get();
    }else {
        cout<<"Data Mahasiswa Dan Mata Kuliah Masih Kosong";
        cin.get(); cin.get();
    }
    }else if (pilihan == 4) {
        break;
    }
    }while (true);
}

void hapus() {
    do{
        int pilihan;
        system("cls");
        cout<<"Halaman Hapus Data\n";
        cout<<"===== \n";
        cout<<"1. Hapus Data Mahasiswa\n";
        cout<<"2. Hapus Mata Kuliah\n";
        cout<<"3. Kembali Ke Menu Utama\n";
        cout<<"===== \n";
        cout<<"Masukkan Pilihan : "; cin>>pilihan;
        if (pilihan == 1) {
            system("cls");
            if(banyak_mhs > 0) {
                cout<<" Data Mahasiswa\n";
                cout<<" ===== \n";
                for(int i = 0; i < banyak_mhs; i++) {
                    cout<<i+1<<" . " << nama[i]<<endl;
                }
                int n;
            }
        }
    }while (true);
}

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cout<<" Masukkan Pilihan : "; cin>>n;
for(int i = n; i < banyak_mhs; i++) {
    nama[i-1] = nama[i];
    nim[i-1] = nim[i];
    kelas[i-1] = kelas[i];
}
for(int j = n; j < banyak_mhs; j++) {
    for(int k = 0; k < banyak_matkul; k++) {
        nilai[j-1][k] = nilai[j][k];
    }
}
for(int i = 0; i < banyak_matkul; i++) {
    nilai[banyak_mhs-1][i] = 0;
}
banyak_mhs -= 1;
system("cls");
cout<<" Data Mahasiswa Berhasil Dihapus";
cin.get(); cin.get();
} else {
    cout<<"Data Mahasiswa Masih Kosong";
    cin.get(); cin.get();
}
} else if (pilihan == 2) {
    system("cls");
    if(banyak_matkul > 0) {
        cout<<" Data Mata Kuliah\n";
        cout<<" =====\n";
        for(int i = 0; i < banyak_matkul; i++) {
            cout<<i+1<<" ".<<matkul[i]<<endl;
        }
        int n;
        cout<<" Masukkan Pilihan : "; cin>>n;
        for(int i = n; i < banyak_matkul; i++) {
            matkul[i-1] = matkul[i];
        }
        for(int j = 0; j < banyak_mhs; j++) {
            for(int k = n; k < banyak_matkul; k++) {
                nilai[j][k-1] = nilai[j][k];
            }
        }
        for(int i = 0; i < banyak_mhs; i++) {
            nilai[i][banyak_matkul-1] = 0;
        }
        banyak_matkul -= 1;
        system("cls");
        cout<<" Data Mata Kuliah Berhasil Dihapus";
        cin.get(); cin.get();
    } else {
        cout<<"Data Mata Kuliah Masih Kosong";
        cin.get(); cin.get();
    }
} else if (pilihan == 3) {
    break;
}
}

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    }while (true);
}

void utama() {
    do {
        system("cls");
        int pilihan;
        cout<<"Menu Data Mahasiswa\n";
        cout<<"=====\n";
        cout<<"1. Input Data\n";
        cout<<"2. Lihat Data\n";
        cout<<"3. Edit Data\n";
        cout<<"4. Hapus Data\n";
        cout<<"5. Keluar\n";
        cout<<"=====\n\n";
        cout<<"Masukkan Pilihan : "; cin>>pilihan;
        if(pilihan == 1) {
            input();
        }else if(pilihan == 2) {
            lihat();
        }else if(pilihan == 3) {
            edit();
        }else if(pilihan == 4) {
            hapus();
        }else if(pilihan == 5) {
            break;
        }
    }while (true);
}

int main() {
    int batas_login = 0;
    do {
        system("cls");
        login();
        if(username == "logika" and password == "algoritma") {
            system("cls");
            cout<<"Login Berhasil";
            batas_login = 0;
            cin.get();cin.get();
            utama();
        }else if(username != "logika" and password == "algoritma") {
            system("cls");
            cout<<"Username Salah";
            batas_login++;
            cin.get();cin.get();
        }else if(username == "logika" and password != "algoritma") {
            system("cls");
            cout<<"Password Salah";
            batas_login++;
            cin.get();cin.get();
        }else {
            system("cls");
            cout<<"Username dan Password Salah";

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```
        batas_login++;  
        cin.get();cin.get();  
    }  
}while(batas_login < 3);  
  
if(batas_login == 3) {  
    system("cls");  
    cout<<"Anda Melebihi Batas Login (3X)";  
    cin.get();cin.get();  
}  
  
return 0;  
}
```