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Michael Dobachesky

SE124.12

Program 4

PURPOSE:

You have been asked by the Registrar's office of a local college to produce a program to search student data to determine the academic standing of a student.

The Registrar would like a program which will search a data file which consists of the student ID, student last name, first name and GPA, and display various results based upon the student's GPA.

VARIABLE DICTIONARY:

REPRESENTS TYPE VARIABLE

First run char first\_run

Matching ID for search char matching\_id

Run reply char run\_reply

First name string first\_name

Last name string last\_name

Students to be entered int max\_students

Variable's row in array int row\_number

ID to search for int search\_id

Student's ID int student\_id

Row number in for loop int subscript\_number

Student's GPA double gpa\_score

Lowest average requirement double lowest\_average

Lowest honors requirement double lowest\_honors

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#include <iostream>

#include <string>

using namespace std;

char first\_run;

char matching\_id;

char run\_reply;

string first\_name[8];

string last\_name[8];

int max\_students;

int row\_number;

int search\_id;

int student\_id[8];

int subscript\_number;

double gpa\_score[8];

double lowest\_average;

double lowest\_honors;

void setup();

void load\_arrays();

void enter\_target();

void search();

void found();

void not\_found();

int main()

{

first\_run = 'Y';

cout << "Would you like to run the Student Academic Lookup application? (Y/N) " << endl;

cin >> run\_reply;

run\_reply = toupper(run\_reply);

while (run\_reply != 'Y' && run\_reply != 'N')

{

cout << "Invalid response " << endl;

cout << "Please enter either a Y or an N " << endl;

cin >> run\_reply;

run\_reply = toupper(run\_reply);

}

system("cls");

while (run\_reply == 'Y')

{

if (first\_run == 'Y')

{

setup();

load\_arrays();

}

enter\_target();

search();

cout << "Would you like to search another student? (Y/N) " << endl;

cin >> run\_reply;

run\_reply = toupper(run\_reply);

while (run\_reply != 'Y' && run\_reply != 'N')

{

cout << "Invalid response " << endl;

cout << "Please enter either a Y or an N " << endl;

cin >> run\_reply;

run\_reply = toupper(run\_reply);

}

system("cls");

}

return 0;

}

void setup()

{

lowest\_average = 2;

lowest\_honors = 3.65;

max\_students = 8;

first\_run = 'N';

}

void load\_arrays()

{

for (subscript\_number = 0; subscript\_number < max\_students; subscript\_number = subscript\_number + 1)

{

cout << "Enter Student ID: ";

cin >> student\_id[subscript\_number];

cout << "Enter Last Name: ";

cin >> last\_name[subscript\_number];

cout << "Enter First Name: ";

cin >> first\_name[subscript\_number];

cout << "Enter GPA: ";

cin >> gpa\_score[subscript\_number];

while (gpa\_score[subscript\_number] < 0 || gpa\_score[subscript\_number] > 4)

{

cout << "Invalid response " << endl;

cout << "Please use a score that is above zero but below four " << endl;

cin >> gpa\_score[subscript\_number];

}

system("cls");

}

}

void enter\_target()

{

cout << "Enter ID of the student you want to look up: " << endl;

cin >> search\_id;

system("cls");

}

void search()

{

matching\_id = 'N';

row\_number = 0;

while (matching\_id == 'N' && row\_number < max\_students)

{

if (search\_id == student\_id[row\_number])

{

matching\_id = 'Y';

}

else

{

row\_number = row\_number + 1;

}

}

if (matching\_id == 'Y')

{

found ();

}

else

{

not\_found();

}

}

void found()

{

if (gpa\_score[row\_number] > lowest\_honors)

{

cout << first\_name[row\_number] << " " << last\_name[row\_number] << " " << "is on the Dean's List " << endl;

}

else

{

if (gpa\_score[row\_number] >= lowest\_average)

{

cout << first\_name[row\_number] << " " << last\_name[row\_number] << " " << "is an average student " << endl;

}

else

{

cout << first\_name[row\_number] << " " << last\_name[row\_number] << " " << "is on academic probation " << endl;

}

}

}

void not\_found()

{

cout << "The student ID was not located " << endl;

}