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\* Programmer: SOLIVIO, Nathaniel P.

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#include <iostream>

#include <iomanip>

using namespace std;

///FUNCTIONS

char getmenu(char \*num);

void getTry();

//OPTION 1

double getBinDisplay(int \*ptr, int \*xsize);

int getLoc(int \*ptr, int size, int \*xtarget);

//OPTION 2

int getsize();

void getInput(double \*ptr, int xsize);

double getElim(double \*ptr, int xsize);

///MAIN PROGRAM

int main()

{

char chr, choice;//DECLARING VALUES FOR LATER

char \*temp;

double \*grades;

double \*average;

int binarray[12]={4,7,8,10,14,21,22,36,62,77,81,91};

int target, loc;

int size = 12;

do{

temp=&chr;

choice = getmenu(temp);

switch(\*temp)

{

case '1': //BINARY SEARCHING

{

getBinDisplay(binarray, &size);

cout<<"enter your target key: ";

cin>>target;

loc = getLoc(binarray, size, &target);

if(loc==-1){

cout<<target<<" is not in the list"<<endl;

}

else{

cout<<target<<" is at the position of ["<<loc<<"]"<<endl;

}

}

break;

case '2': //GRADE ELIMINATION

{

double grades;

int size;

double average;

size=getsize();

getInput(&grades, size);

average = getElim(&grades, size);

cout<<fixed<<setprecision(2)<<"average is "<<average<<endl;

}

break;

case '3': //EXIT

{

cout<<"thank you for using our program..."<<endl;

exit(1);

}

break;

}//END OF SWITCH

getTry();//RETRY

}while(true);//END OF DO-WHILE STATEMENT

return 0;

}////////PROGRAM END

char getmenu(char \*num) //MENU

{

char chc;

do{

system("cls");

cout<<"----------MENU-----------"<< endl//MENU

<<"[1] binary Searching"<< endl

<<"[2] grade elimination"<< endl

<<"[3] exit"<< endl

<<"enter your choice: ";

cin>> chc;

\*num = chc;

return chc;

}while(chc!='1' && chc!='2' && chc!='3');//SOMETHING WRONG HERE

}

void getTry()//RETRY MENU

{

char opt;

do{

cout<<"Do you want to try again?[y/n]: ";

cin>>opt;

if(opt=='n' || opt=='N'){

cout<<"thank you for using our program..."<<endl;

exit(1);

}

}while(opt != 'y' && opt != 'n');

}

int getsize()//OPTION 2 ARRAY SIZE

{

int size;

cout<<"Option 2: Grade Elimination"<<endl;

do{

cout<<"Enter your desired number of grades [5 to 10 only]: ";

cin>>size; //GETTING SIZE OF ARRAY

if(size<5 || size>10){

cout<<size<<" invalid... Please re-enter"<<endl;

}

}while(size<5 || size>10);

return size;

}

void getInput(double \*ptr, int xsize) //OPTION 2 INPUT

{

cout<<"enter "<<xsize<<" grades"<<endl;

for(int i=0; i<xsize; i++){//LOOP FOR INPUTS

cout<<"grade["<<i+1<<"] ";

cin>>\*(ptr+i);

}//END OF FOR LOOP

}

double getElim(double \*ptr, int xsize) //OPTION 2 GET ELIMINATION

{

int gr;

double sum;

cout<<"enter grade to eliminate: "; //PROBING THE USER WHICH GRADE NEEDS TO BE REMOVE FROM THE ARRAY

cin>> gr;

cout<<endl;

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

if(ptr[i] != gr){

sum+= ptr[i];

}

else{

cout<<fixed<<setprecision(2)<<gr<<" is eliminated"<<endl;

}

}

double ave = (sum/(xsize-1)); //-1 BECAUSE WE ELIMINATED A VALUE IN THE ARRAY

return ave;

}

double getBinDisplay(int \*ptr, int \*xsize){//DISPLAYS THE ARRAY

cout<<"Option 1: Binary Searching"<<endl;

cout<<"Displaying elements in the array"<<endl;

for (int i=0; i<(\*xsize); i++){ //DISPLAYING THE ELEMENTS OF THE ARRAY THAT WAS DECLARED EARLIER

cout<<ptr[i]<<" ";

}

cout<<endl;

}

int getLoc(int \*ptr, int size, int \*xtarget){//LOCATION OF CHOSEN VALUE

int mid, beg, end;

int target = \*xtarget;

beg=0;

end= size;

mid= (beg+end)/2;

while(beg<end){ //CHECKING TO SEE IF THE TARGET MATCHES ANY OF THE VALUES IN THE ARRAY

if(ptr[mid] == target){

return mid;

}

if(ptr[mid] > target){

end = mid-1;

}

if(ptr[mid] < target){

beg = mid+1;

}

mid = (beg+end)/2;

}

return -1;

}