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~kvollmay/sunhome/classes.dir/capstone_s2008.dir/unix_C++_intro.dir/C++sample_inout.cc
=====
// Sample Program For Input/Output
// with cout/cin name & birthdate are read in & sentence printed out
// handling files: from file "birthdays.data" four name&birthdays read
// sentence for each printed into file "birthdaysout"
//
#include <iostream> // for input/output via screen
using namespace std;
#include <fstream> // for input/output via files
#include <string> // to enable data-type string

int main(){
    int birthday, birthmonth,birtheyear;
    string firstname,lastname;

// use screen for input and output:
//-----
    cout << "Please type your first name and your last name,"
    << " separated by a blank. ";
    cin >> firstname >> lastname;
    cout << "please type in your birthday (month, day, year) "
    << " in the form of three integers separated by blanks. ";
    cin >> birthmonth >> birthday >> birtheyear;
    cout << firstname << " " << lastname << " is born on "
    << birthmonth << "/" << birthday << "/" << birtheyear << "."
    << endl;

// use files for input and output: (same as before but 5 times)
//-----
    ifstream infile ("birthdays.data",ios::in);
    ofstream outfile ("birthdaysout",ios::out);
    int i;

    for (i=1; i <= 4; i++){
        infile >> firstname >> lastname;
        infile >> birthmonth >> birthday >> birtheyear;
        outfile << firstname << " " << lastname << " is born on "
        << birthmonth << "/" << birthday << "/" << birtheyear << "."
        << endl;
    }

    return 0;
}

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~kvollmay/sunhome/classes.dir/capstone_s2008.dir/unix_C++_intro.dir/C++sample_datatype
s.cc
=====
// Sample Program For Data Types
//
#include <iostream> // for cin and cout
using namespace std;
#include <string> // for string
#include <cmath> // for mathematical functions
#include <cstdlib> // -"-

int main(){
// integer variables:
//-----
    int i1,i2; //similarly short etc.

    i1 = 3;
    i2 = 4*i1;

    cout << "i1 = 3 and i2=4*i1= " << i2 << endl;

// real variables:
//-----
    double d1,d2,d3; //similarly float and long double

    d1 = 3.2;
    d2 = 2.1E-2;
    d3 = 1.5e+3;
    cout << "d1,d2,d3 = " << d1 << " " << d2 << " " << d3 << endl;
    cout << "exp(3.1)= " << exp(3.1) << endl;

// character variables:
//-----
    char c1,c2,c3; // single characters
    string firstname,lastname,genericname; // string of characters

    c1 = 'h';
    cout << "the character c1 = " << c1 << endl;
    cout << "please type in your first and last name " ;
    cin >> firstname >> lastname;
    cout << "Thank you " << firstname << " " << lastname << "!" << endl;
    genericname = "Otto Mueller";
    cout << genericname << endl;

// logical variable:
//-----
    bool b1,b2,b3;

    b1 = false;
    b2 = true;
    b3 = (d1 < d2);
    cout << "b1, b2, b3 = " << b1 << " " << b2 << " " << b3 << endl;

    return 0;
}

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~kvollmay/sunhome/classes.dir/capstone_s2008.dir/unix_C++_intro.dir/C++sample_repetiti
ons.cc
=====
// Sample Program For Repetitions
// example reads in integer N and calculates&prints 1+2+3+...+N
// using various repetition options and at end mathematical check
//
#include <iostream> // for cin and cout
using namespace std;
#include <cmath> // for mathematical functions
#include <cstdlib> // -"-

int main(){
    int i,N,sum,check;

// read in N
    cout << "Please type in an integer. ";
    cin >> N;

// calculate 1+2+3+...+N

// while

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sum = 0;
i = 0;
while (i <= N){
    sum += i;
    i ++;
}
cout << "With while : 1+2+...+N = " << sum << endl;

// for

sum = 0;
for (i=0; i <= N; i++)
    sum += i;
cout << "With for : 1+2+...+N = " << sum << endl;

// do while

i = 0;
sum = 0;
do{
    sum += i;
    i++;
}
while (i <= N);
cout << "With do-while : 1+2+...+N = " << sum << endl;;

// check with N*(N+1)/2

check = (N*(N+1))/2;
cout << "N*(N+1)/2= " << check << endl;

return 0;
}

=====
~kvollmay/sunhome/classes.dir/capstone_s2008.dir/unix_C++_intro.dir/C++sample_decision
s.cc
=====
// Sample Program For Decisions
// This program reads in two names and birth dates and
// prints out who the older person is.
//
#include <iostream> // for cin and cout
using namespace std;
#include <string> // for string

int main(){
// read in names and birth dates
//-----
    string name1,name2;
    int day1,month1,year1,day2,month2,year2;

    cout << "Please type in the first name ";
    cin >> name1;
    cout << "What is the birth date of " << name1 << "? "
        << " (month, day, year)" << endl
        << "3 integers separated by blanks ";
    cin >> month1 >> day1 >> year1;

    cout << "Please type in the second name ";
    cin >> name2;
    cout << "What is the birth date of " << name2 << "? "

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        << " (month, day, year) " << endl
        << "3 integers separated by blanks ";
    cin >> month2 >> day2 >> year2;

// determine who the older person is (older = 1 or 2, 3 if same)
//-----

    int older;

    if(year1 != year2){
        if(year1 < year2)
            older = 1;
        else
            older = 2;
    }
    else if (month1 != month2){
        if(month1 < month2)
            older = 1;
        else
            older = 2;
    }
    else {
        if(day1 < day2)
            older = 1;
        else if (day1 > day2)
            older = 2;
        else
            older = 3;
    }

// print out the result
//-----
    switch (older){
    case 1 :
        cout << name1 << " is the older person." << endl;
        break;

    case 2 :
        cout << name2 << " is the older person." << endl;
        break;

    case 3 :
        cout << name1 << " and " << name2 << " are the same age." << endl;
        break;
    }

    return 0;
}

=====
~kvollmay/sunhome/classes.dir/capstone_s2008.dir/unix_C++_intro.dir/C++sample_arrays.c
c
=====
// Sample Program For Arrays and how to use in functions
// A[] B[][]
//
// note for KVL: in previous year this was C++sample_arrays_3.cc
#include <iostream> // for cin and cout
using namespace std;
#include <string> // for string
#include <cmath> // for mathematical functions
#include <cstdlib> // -"-

const int ALENGTH = 5;

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const int BLENGTH = 3;

void printvector (const int [], int); // prints vector
void printmatrix (const int [BLENGTH][BLENGTH]); //print BLENGTHxBLENGTH
void multiplyvectorbytwo (int [],int); // (modify vector)
void multiplymatrixbytwo (int [BLENGTH][BLENGTH]); // (modify matrix)

int main(){
    int A[ALENGTH];
    int B[BLENGTH][BLENGTH];
    int i,j,count;

// determine A and B
//
    for (i=0; i<= (ALENGTH-1); i++){
        A[i] = (i+1)*(i+1);
    }

    count = 0;
    for (i=0; i <= (BLENGTH-1); i++){
        for (j=0; j <= (BLENGTH-1); j++){
            B[i][j] = count;
            count++;
        }
    }

// print A
    cout << "A: ";
    printvector(A,ALENGTH); //call function to print A
    cout << endl;

// print B
    cout << "B: " << endl;
    printmatrix(B);

// multiply A by 2 and print again
    multiplyvectorbytwo(A,ALENGTH);
    cout << "A: ";
    printvector(A,ALENGTH); //call function to print A
    cout << endl;
// multiply B by 2 and print again
    multiplymatrixbytwo(B);
    cout << "B: " << endl;
    printmatrix(B);

return 0;
}

//-----
// function prints vector (example for 1-d array in, nothing out
void printvector(const int vectorA[], int Asize){
// alternative void printvector(const int* vectorA, int Asize){
//-----
    for (int i=0; i<= (Asize-1); i++){
        cout << vectorA[i] << " ";
    }
    cout << endl;
}

//-----
// function prints matrix. notice that length needs to be specified
void printmatrix (const int matrix [BLENGTH][BLENGTH]){ //print matrix
//-----
    for (int i=0; i <= (BLENGTH-1); i++){
        for (int j=0; j <= (BLENGTH-1); j++){

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            cout << matrix[i][j] << " ";
        }
        cout << endl;
    }
    cout << endl;
}

//-----
void multiplyvectorbytwo (int vector[], int size){
    for (int i=0; i<= (size-1); i++){
        vector[i] = vector[i]*2;
    }
}

//-----
void multiplymatrixbytwo (int matrix [BLENGTH][BLENGTH]){
    for (int i=0; i <= (BLENGTH-1); i++){
        for (int j=0; j <= (BLENGTH-1); j++){
            matrix[i][j] = matrix[i][j] * 2;
        }
    }
}

//-----
// note for KVL: make psfile with  enscript -2r -p psfilename textfilename

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