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//*****
//
// Sample Solution for pa6.cc -- Fall 2005
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//*****
#include <iostream>
#include <iomanip>
#include <string>
using namespace std;

int main()
{
    int    i, count, base, exponent, int1, int2, multiple, answer, sum;
    double celsius;
    char   choice;
    string sentinel, word;

    cout << fixed << showpoint;
    cout.precision(3);

    do
    {
        cout << "1. Exponentiation\n";
        cout << "2. Print and Sum Multiples\n";
        cout << "3. Fahrenheit / Celsius Table\n";
        cout << "4. Count Characters\n";
        cout << "5. Quit\n\n";

        cout << "Choice: ";
        cin >> choice;

        switch(choice)        // notice that choice is a char variable
        {
            case '1': cout << endl;
                cout << "    Enter the base integer: ";
                cin >> base;
                cout << "Enter the exponent integer: ";
                cin >> exponent;
                cout << endl;

                // This code makes the assumption that exponent >= 0
                answer = 1;
                for (i = exponent; i > 0; i--)
                    answer = answer * base;

                cout << base << " raised to the power " << exponent << " = "
                    << answer << endl << endl;
                break;
            case '2': cout << endl;
                cout << "Enter the multiple(integer) to use: ";
                cin >> multiple;
                cout << "                Enter beginning integer: ";
                cin >> int1;
                cout << "                Enter ending integer: ";
                cin >> int2;
                cout << endl;

                // This code makes the assumption that int1 <= int2
                sum = 0;
                count = 0;

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for (i = int1; i <= int2; i++)
{
    if (i%multiple == 0)
    {
        sum = sum + i;
        cout << setw(4) << i;
        count++;
        if (count%5 == 0)
        {
            cout << endl;
            count = 0;
        }
    }
}
cout << "\nThe sum of these multiples of " << multiple
    << " is: " << sum << "\n\n";
break;
case '3': cout << endl;
cout << "Enter beginning Fahrenheit temp: ";
cin >> int1;
cout << "    Enter ending Fahrenheit temp: ";
cin >> int2;
cout << endl;

cout << "\nFahrenheit        Celsius\n";
cout << "-----\n";

// This code makes the assumption that int1 <= int2
for (i = int1; i <= int2; i++)
{
    celsius = (i - 32) * 5.0/9.0;
    cout << setw(7) << i << setw(15) << celsius << endl;
}
cout << endl;
break;
case '4': cout << endl;
cout << "Enter the sentinel string value (NO spaces): ";
cin >> sentinel;

sum = 0;
cout << "Enter a word (NO spaces): ";
cin >> word;

while (word != sentinel)
{
    sum = sum + word.length();
    cout << "Enter a word (NO spaces): ";
    cin >> word;
}

cout << "The sum of all characters entered: " << sum << "\n\n";
break;
case '5': cout << "Thank you for using the program ... Goodbye !!\n\n";
break;
default: cout << "Invalid Selection  -- Please Try Again !\n\n";
break;
}
} while (choice != '5');

return 0;
}

```