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1 /*****
2 *  AUTHOR      :  Blake Allard
3 *  STUDENT ID   :  358888
4 *  ASSIGNMENT #4 :  Input & Output - New Salary
5 *  CLASS       :  CS1A
6 *  SECTION     :  M/W: 8am
7 *  DUE DATE    :  10/22/24
8 *****/
9
10 #include <iostream>      /* cout, cin */
11 #include <iomanip>       /* setprecision, setw, fixed */
12 using namespace std;
13
14 /*****
15 *  INPUT & OUTPUT: New Salary
16 *
17 *  This program will obtain:
18 *      - the user's name
19 *      - the user's current annual salary
20 *      - a percent increase due
21 *
22 *
23 *  Then calculate, store, and output:
24 *      - the new annual salary
25 *      - the new monthly salary
26 *      - the retroactive pay due
27 *
28 *  INPUT:
29 *      fullName      : The user's name
30 *      currentSal     : The user's current salary
31 *      percIncreaseDue : The percent increase due
32 *
33 *
34 *  OUTPUT: This program will output:
35 *      newAnnualSalary : The user's new calculated salary
36 *      newMonthlySalary : The user's new calculated monthly salary
37 *      retroPayDue      : The user's calculated retroactive pay due
38 *
39 * -----
40 *EXAMPLE INPUT / OUTPUT:
41 *
42 *What is your name?      Jean Cyr
43 *What is your current salary? 80000
44 *What is your pay increase? .05
45 *
46 *Jean Cyr's SALARY INFORMATION
47 *New Salary      Monthly Salary      Retroactive Pay

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48 *   84000.00           7000.00           2000.00
49 *
50 *****/
51
52 int main()
53 {
54     /* *****
55     * CONSTANTS
56     * -----
57     * OUTPUT - Used for Class Headings
58     * -----
59     * PROGRAMMER      : Programmer's Name
60     * CLASS           : Student's Course
61     * SECTION         : Class Days and Times
62     * ASN_NUM         : Assignment Number
63     * ASN_NAME        : Title of the Assignment
64     * -----
65     * FORMATTING - USED FOR SETWS
66     * -----
67     * PROMPT_COL      : column width
68     * NEW_SAL_COL     : new salary column width
69     * SAL_COL_SPACE   : space between columns
70     * NEW_MONTH_SAL   : monthly salary column width
71     * RETRO_PAY_DUE   : retroactive pay column width
72     * -----
73     * C-STRING SIZE - Used to define the size of the c-strings
74     * -----
75     * NAME_SIZE       : the size of the user's name
76     * -----
77     * PROCESSING - Used for processing:
78     *             - New Annual Salary
79     *             - New Monthly Salary
80     *             - Retroactive Pay
81     * -----
82     * RETRO_PAY       : the number of retroactive months due
83     * MONTHS_IN_YEAR  : the number of months in a year
84     *****/
85
86     // OUTPUT - USED FOR CLASS HEADING
87     const char PROGRAMMER[] = "Blake Allard";
88     const char CLASS[]     = "CS1A";
89     const char SECTION[]   = "M/W: 8am";
90     const int  ASN_NUM     = 4;
91     const char ASN_NAME[]  = "Input & Output: New Salary";
92
93     // C-STRING SIZE
94

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95     const char NAME_SIZE          = 25;
96
97     // FORMATTING - USED FOR SETWS
98     const char PROMPT_COL         = 29;
99     const int  NEW_SAL_COL         = 10;
100    const int  SAL_COL_SPACE       = 5;
101    const int  NEW_MONTH_SAL       = SAL_COL_SPACE + 14;
102    const int  RETRO_PAY_DUE       = SAL_COL_SPACE + 15;
103
104    // CALCULATING - USED FOR CALCULATING NEW SALARY, NEW MONTHLY, & RETRO PAY
105    const int  RETRO_PAY           = 6;
106    const int  MONTHS_IN_YEAR      = 12;
107
108
109    /*****
110     * VARIABLES
111     *****/
112    char fullName[NAME_SIZE]; // IN    & OUTPUT - user's name
113    double currentSalary;      // IN          - user's current salary
114    double percIncrease;      // IN          - user's percent increase
115    double retroPayDue;        // CALC & OUTPUT - user's retroactive pay
116    double newAnnualSalary;    // CALC & OUTPUT - user's new annual salary
117    double newMonthlySalary;   // CALC & OUTPUT - user's new monthly salary
118
119    /*****
120     * OUTPUT - Class heading
121     *****/
122
123    cout << left;
124    cout << "*****\n";
125    cout << " * PROGRAMMED BY : " << PROGRAMMER
126         << endl;
127    cout << " * " << setw(14) << "CLASS" << ": " << CLASS
128         << endl;
129    cout << " * " << setw(14) << "SECTION" << ": " << SECTION
130         << endl;
131    cout << " * ASSIGNMENT #" << setw(2) << ASN_NUM << ": " << ASN_NAME
132         << endl;
133    cout << "*****\n\n";
134    cout << right;
135
136    /*****
137     * INPUT - this program will input:
138     *          - the user's name
139     *          - the user's annual salary
140     *          - the user's percent increase due
141     *****/

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142
143     cout << left;
144
145     cout << setw(PROMPT_COL) << "What is your name? ";
146     cin.getline(fullName, NAME_SIZE);
147
148     cout << setw(PROMPT_COL) << "What is your current salary? ";
149     cin >> currentSalary;
150
151     cout << setw(PROMPT_COL) << "What is your pay increase? ";
152     cin >> percIncrease;
153     cin.ignore(10000, '\n');
154
155     cout << right;
156
157     /*****
158     * PROCESSING - this program will process:
159     *             - the user's new annual salary
160     *             - the user's new monthly salary
161     *             - the user's retroactive pay due
162     *****/
163
164     newAnnualSalary = currentSalary * (1 + percIncrease);
165     newMonthlySalary = newAnnualSalary / MONTHS_IN_YEAR;
166     retroPayDue      = (newMonthlySalary - (currentSalary / MONTHS_IN_YEAR))
167                       * RETRO_PAY;
168
169     /*****
170     * OUTPUT - this program will output the user's new salary, new monthly
171     * salary, and the user's retroactive pay as follows:
172     *
173     *fullName SALARY INFORMATION
174     *New Salary      Monthly Salary      Retroactive Pay
175     * 84000.00       7000.00             2000.00
176     *****/
177     // FORMATTING - for the floating point numbers
178     cout << setprecision(2) << fixed;
179     cout << endl;
180     cout << fullName << "\'s " << "SALARY INFORMATION";
181
182     cout << endl;
183
184     cout << setw(NEW_SAL_COL) << "New Salary";
185     cout << setw(NEW_MONTH_SAL) << "Monthly Salary";
186     cout << setw(RETRO_PAY_DUE) << "Retroactive Pay";
187
188     cout << endl;

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189
190 // OUTPUT - DATA (new salary, new monthly salary, & retroactive pay due)
191 cout << setw(NEW_SAL_COL) << newAnnualSalary;
192 cout << setw(NEW_MONTH_SAL) << newMonthlySalary;
193 cout << setw(RETRO_PAY_DUE) << retroPayDue;
194
195 cout << endl << endl;
196
197 // FORMATTING - reset floating point manipulators
198 cout << setprecision(6);
199 cout.unsetf(ios::fixed);
200
201
202 return 0;
203
204 }
205
```