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// Kody Gentry, CS 2318-003, Assignment 2 Part 2
// c++ program to modify a cpp to a format that will
// translate to MIPS by changing for and while loops
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#include <iostream>
using namespace std;
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int a1[12],
    a2[12],
    a3[12];
char einStr[]    = "Enter integer #";
char moStr[]     = "Max of ";
char ieStr[]     = " ints entered...";
char emiStr[]    = "Enter more ints? (n or N = no, others = yes) ";
char begA1Str[]  = "beginning a1: ";
char nn09A1Str[] = "a1 (noneg09): ";
char procA1Str[] = "processed a1: ";
char procA2Str[] = "          a2: ";
char procA3Str[] = "          a3: ";
char dacStr[]    = "Do another case? (n or N = no, others = yes) ";
char dlStr[]     = "===== ";
char byeStr[]    = "bye...";
```

```
int main() {
    char reply;
    int used1,
        used2,
        used3,
        truncAvg,
        found,
        sum,
        *hopPtr1,
        *hopPtr11,
        *hopPtr2,
        *hopPtr3,
        *endPtr1,
        *endPtr11,
        *endPtr2,
        *endPtr3;

    reply = 'y';
    //while (reply != 'n' && reply != 'N')
    goto WTest1;
    begW1://          {
    used1 = 0;
    hopPtr1 = a1;
    //while (reply != 'n' && reply != 'N')
    goto WTest2;
    begW2://          {
    cout << einStr;
    cout << (used1 + 1);
    cout << ':' << ' ';
    cin >> *hopPtr1;
    ++used1;
    ++hopPtr1;
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//if (used1 < 12)
if (used1 >= 12) goto else1;
//      {
cout << emiStr;
cin >> reply;
goto endI1;
//      }
else1://      else
//      {
cout << moStr << 12 << ieStr << endl;
reply = 'n';
endI1://      }

WTest2:
if (reply != 'n' && reply != 'N') goto begW2;
endW2://      }

cout << begA1Str;
//if (used1 > 0)
if (used1 <= 0) goto endI2;
begI2://      {
hopPtr1 = a1;
endPtr1 = a1 + used1;
//do
begDW1://      {
cout << *hopPtr1 << ' ' << ' ';
++hopPtr1;
endDW1://      }
//while (hopPtr1 < endPtr1);
DWTest1:
if (hopPtr1 < endPtr1) goto begDW1;
endI2://      }
cout << endl;

//if (used1 > 1)
if (used1 <= 1) goto else3;
begI3://      {
hopPtr1 = a1;
endPtr1 = a1 + used1 - 1;
//while (hopPtr1 < endPtr1)
goto WTest3;
begW3://      {
found = 0;
//for (hopPtr2 = hopPtr1 + 1, endPtr2 = a1 + used1; hopPtr2 < endPtr2; ++hopPtr2)
hopPtr2 = hopPtr1 + 1;
endPtr2 = a1 + used1;
goto FTest1;
begF1://      {
//if (*hopPtr2 == *hopPtr1)
if (*hopPtr2 != *hopPtr1) goto endI4;
begI4://      {
//if (found == 1)
if (found != 1) goto else5;
begI5://      {
//for (hopPtr3 = hopPtr2 + 1, endPtr3 = a1 + used1; hopPtr3 < endPtr3; ++hopPtr3)

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hopPtr3 = hopPtr2 + 1;
endPtr3 = a1 + used1;
goto FTest2;
begF2:// {
*(hopPtr3 - 1) = *hopPtr3;
++hopPtr3;
FTest2:
if (hopPtr3 < endPtr3) goto begF2;
endF2:// }
--used1;
--endPtr1;
--endPtr2;
--endPtr3;
--hopPtr2;
goto endI5;
// }
else5:// else
// {
++found;
endI5:// }
endI4:// }
++hopPtr2;
FTest1:
if (hopPtr2 < endPtr2) goto begF1;
endF1:// }
++hopPtr1;
WTest3:
if (hopPtr1 < endPtr1) goto begW3;
endW3:// }

cout << nn09A1Str;
//if (used1 > 0)
if (used1 <= 0) goto endI6;
begI6:// {
hopPtr1 = a1;
endPtr1 = a1 + used1;
//do
begDW2:// {
cout << *hopPtr1 << ' ' << ' ';
++hopPtr1;
endDW2:// }
//while (hopPtr1 < endPtr1);
DWTest2:
if (hopPtr1 < endPtr1) goto begDW2;
endI6:// }
cout << endl;

//if (used1 > 0)
if (used1 <= 0) goto endI7;
begI7:// {
sum = 0;
hopPtr1 = a1 + used1 - 1;
endPtr1 = a1;
//do
begDW3:// {

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sum += *hopPtr1;
--hopPtr1;
endDW3://      }
//while (hopPtr1 >= endPtr1);
//truncAvg = sum / used1;
DWTest3:
if (hopPtr1 >= endPtr1) goto begDW3;
truncAvg = sum / used1;

used2 = 0;
used3 = 0;
hopPtr2 = a2;
hopPtr3 = a3;
//for (hopPtr1 = a1, endPtr1 = a1 + used1; hopPtr1 < endPtr1; ++hopPtr1)
hopPtr1 = a1;
endPtr1 = a1 + used1;
goto FTest3;
begF3://      {
//if (*hopPtr1 != truncAvg)
if (*hopPtr1 == truncAvg) goto endI8;
begI8://      {
//if (*hopPtr1 < truncAvg)
if (*hopPtr1 >= truncAvg) goto elseI9;
begI9://      {
*hopPtr2 = *hopPtr1;
++used2;
++hopPtr2;
goto endI9;
//      }
elseI9://      else
//      {
*hopPtr3 = *hopPtr1;
++used3;
++hopPtr3;
endI9://      }
//for (hopPtr11 = hopPtr1 + 1, endPtr11 = a1 + used1; hopPtr11 < endPtr11; ++hopPtr11)
hopPtr11 = hopPtr1 + 1, endPtr11 = a1 + used1;
goto FTest4;

begF4://      {
*(hopPtr11 - 1) = *hopPtr11;
++hopPtr11;
FTest4:
if (hopPtr11 < endPtr11) goto begF4;
endF4://      }
--used1;
--endPtr1;
--hopPtr1;
endI8://      }
++hopPtr1;
FTest3:
if (hopPtr1 < endPtr1) goto begF3;
endF3://      }

//if (used1 == 0)

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if (used1 != 0) goto endI10;
begI10:// {
*(a1 + 0) = truncAvg;
++used1;
endI10:// }
endI7:// }
goto endI3;
// }
else3:// else
// {
hopPtr1 = a1;
cout << nn09A1Str;
cout << *hopPtr1;
cout << endl;
used2 = 0;
used3 = 0;
endI3:// }

cout << procA1Str;
//if (used1 > 0)
if (used1 <= 0) goto endI11;
begI11:// {
hopPtr1 = a1;
endPtr1 = a1 + used1;
//do
begDW4:// {
cout << *hopPtr1 << ' ' << ' ';
++hopPtr1;
endDW4:// }
//while (hopPtr1 < endPtr1);
DWTest4:
if (hopPtr1 < endPtr1) goto begDW4;
endI11:// }
cout << endl;

cout << procA2Str;
//if (used2 > 0)
if (used2 <= 0) goto endI12;
begI12:// {
hopPtr2 = a2;
endPtr2 = a2 + used2;
//do
begDW5:// {
cout << *hopPtr2 << ' ' << ' ';
++hopPtr2;
endDW5:// }
//while (hopPtr2 < endPtr2);
DWTest5:
if (hopPtr2 < endPtr2) goto begDW5;
endI12:// }
cout << endl;

cout << procA3Str;
//if (used3 > 0)
if (used3 <= 0) goto endI13;

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begI13://                                {
hopPtr3 = a3;
endPtr3 = a3 + used3;
//do
begDW6://                                {
cout << *hopPtr3 << ' ' << ' ';
++hopPtr3;
endDW6://                                }
//while (hopPtr3 < endPtr3);
DWTest6:
if (hopPtr3 < endPtr3) goto begDW6;
endI13://                                }
cout << endl;

cout << dacStr;
cin >> reply;
WTest1:
if (reply != 'n' && reply != 'N') goto begW1;
endW1://                                }

cout << dlStr << '\n';
cout << byeStr << '\n';
cout << dlStr << '\n';

return 0;
}

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