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Screenshot Coding

main.cpp

```
1 | #include "hello_1301200204.h"
2 |
3 | int main()
4 | {
5 |     cout << "Test procedure Greeting" << endl;
6 |     string name = "Muhammad Rafli Ramadhan";
7 |     string id = "1301200204";
8 |     greetings(name, id);
9 |
10 |    cout << "please answer Question 1" << endl << endl;
11 |
12 |    cout << "Test procedure swap_1 and swap_2" << endl;
13 |    int a = 15;
14 |    int b = 30;
15 |    int c = 75;
16 |    swap_1(a,b,c);
17 |    cout << "a = " <<a<< ", b = " <<b<< ", c = " <<c<<endl;
18 |    a = 15;
19 |    b = 30;
20 |    c = 75;
21 |    swap_2(a,b,c);
22 |    cout << "a = " <<a<< ", b = " <<b<< ", c = " <<c<<endl;
23 |
24 |    cout << "please answer Question 2"<<endl<<endl;
25 |
26 |    cout << "Test procedure confused"<<endl;
27 |    confused();
28 |    cout << "please answer Question 3"<<endl<<endl;
29 |
30 |    cout<<"Test procedure remove inside"<<endl;
31 |    remove_inside(5);
32 |    cout<<"please answer Question 4"<<endl<<endl;
33 |
34 |    cout << "Test procedure indexing"<<endl;
35 |    cout<<"example 1: " <<indexing(70,75,60)<<endl;
36 |    cout<<"example 2: " <<indexing(45,70,50)<<endl;
37 |    cout<<"example 3: " <<indexing(75,80,82)<<endl;
38 |    cout<<"please answer question 5"<<endl<<endl;
39 |    return 0;
40 | }
```

Hello_1301200204.h

```
1  #ifndef HELLO_1301200204_H_INCLUDED
2  #define HELLO_1301200204_H_INCLUDED
3
4  #include <iostream>
5  #include <cstdlib>
6
7  using namespace std;
8
9  void greetings(string x, string y);
10 void swap_1(int a, int b, int c);
11 void swap_2(int , int &b, int &c);
12 void confused();
13 void remove_inside(int);
14 string indexing(double, double, double);
15 #endif // HELLO_H_INCLUDED
16
17
```

Hello_1301200204.cpp

```
1  #include "hello_1301200204.h"
2
3  void greetings(string x, string y){
4      /*
5       *   Name: Muhammad Rafli Ramadhan
6       *   NIM: 1301200204
7       */
8      if(y.length() != 10){
9          cout << "wrong input" << endl;
10     }else{
11         if(y.substr(0,2) == "13"){
12             cout << "hello " << x << " from school of computing." << endl;
13             cout << "you are majoring in ";
14             // int z = static_cast<int>(y[3])-48;
15             const char *p = y.substr(3,1).c_str();
16             int z = atoi(p);
17             switch(z) {
18                 case 1:
19                     cout << "Informatics";
20                     break;
21                 case 2:
22                     cout << "Computation Science";
23                     break;
24                 case 3:
25                     cout << "Informatics Technology";
26                     break;
27                 default:
28                     cout << "..., Where again?";
29             }
30
31             cout << endl;
32             cout << "and you're the ";
33             string n = y.substr(6, 4);
34             if (n[3] == '1') {
35                 cout << n << "st";
36             }else if (n[3] == '2') {
37                 cout << n << "nd";
38             }else{
```

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38         }else{
39             cout << n << "th";
40         }
41
42         cout << " student listed in this major" << endl;
43         cout << "in " << "20"+y.substr(4,2)<<endl;
44     }else{
45         cout << "hello, you're not from School of Computing, " << "are you" << endl;
46     }
47 }
48 }
49
50 void swap_1(int a, int b, int c) {
51     /*
52      Name: Muhammad Rafli Ramadhan
53      NIM: 1301200204
54     */
55     c = b;
56     b = a;
57     a = c * b++;
58 }
59
60 void swap_2(int a, int &b, int &c) {
61     /*
62      Name: Muhammad Rafli Ramadhan
63      NIM: 1301200204
64     */
65     c = b;
66     b = a;
67     a = c * b++;
68 }
69
70 void confused() {
71     /*
72      Name: Muhammad Rafli Ramadhan
73      NIM: 1301200204
74     */
75     int x1 = 5;

```

```

75     int x1 = 5;
76     int x2 = 5;
77     int x3 = 5;
78
79     int *pA;
80     int *pB;
81     int *pC;
82     int *pD;
83     int *pE;
84     pA = &x1;
85     pB = &x2;
86     pC = pB;
87     pD = pC;
88     pE = pB;
89     pB = &x3;
90     *pD = 10;
91     pC = &x1;
92     *pE = x2 - *pA;
93     cout << "pA = " << *pA << ", pB = "
94     << *pB << ", pC = " << *pC << ", pD = " << *pD << ", pE = " << *pE << endl;
95
96 }
97
98 void remove_inside(int x) {
99     /*
100      Name: Muhammad Rafli Ramadhan
101      NIM: 1301200204
102     */
103     cout << "removing index " << x << endl;
104     int arr[] = {4,6,7,9,4,6,8,4,2,2,5,8,0,4};
105     int n = sizeof(arr)/sizeof(arr[0]);
106     for (int i = 0; i < n; i++){
107         cout << arr[i] << ", ";
108     }
109     cout << endl;
110
111     if(x>0 && x <n){
112         while (x<n) {

```

```

111         if(x>0 && x<n){
112             while (x<n) {
113                 arr[x++] = arr[x];
114             }
115             n--;
116             for (int i = 0; i<n; i++){
117                 cout << arr[i] << ", ";
118             }
119             cout << endl;
120         }else {
121             cout << "wrong input" << endl;
122         }
123     }
124
125     string indexing(double x, double y, double z) {
126         /*
127          Name: Muhammad Rafli Ramadhan
128          NIM: 1301200204
129          */
130         double t = x*0.4 + y*0.35 + z*0.25;
131         if(t > 80)
132             return "A";
133         if(t > 75)
134             return "AB";
135         if(t > 70)
136             return "B";
137         if(t > 60)
138             return "BC";
139         if(t > 50)
140             return "C";
141         if(t > 40)
142             return "D";
143         return "E";
144     }
145

```

Hasil Coding

```

"C:\Users\rafi\Documents\Perkuliahan\Semester 3\Struktur Data\Struktur Data Coding\tugas_pendahuluan\bin\Debug\tugas_pendah...
Test procedure Greeting
hello Muhammad Rafli Ramadhan from school of computing.
you are majoring in Informatics
and you're the 0204th student listed in this major
in 2020
please answer Question 1

Test procedure swap_1 and swap_2
a = 15, b = 30, c = 75
a = 15, b = 16, c = 30
please answer Question 2

Test procedure confused
pA = 5, pB = 5, pC = 5, pD = 5, pE = 5
please answer Question 3

Test procedure remove inside
removing index 5
4, 6, 7, 9, 4, 6, 8, 4, 2, 2, 5, 8, 0, 4,
4, 6, 7, 9, 4, 8, 4, 2, 2, 5, 8, 0, 4,
please answer Question 4

Test procedure indexing
example 1: BC
example 2: C
example 3: AB
please answer question 5

Process returned 0 (0x0)   execution time : 0.107 s

```

Pertanyaan

1. Menampilkan identitas mahasiswa dari nama dan nim, processnya nim di cek, kalau bukan 10, dinyatakan tidak valid, jika nim awalan 13 bisa di identifikasikan mahasiswa tersebut adalah mahasiswa informatika. Selanjutnya mengecek index ke 3 untuk mengecek jurusan mahasiswa lalu mengecek list mahasiswa dari 4 angka terakhir dan mengecek tahun Angkatan dari nim
2. Process yang terjadi di procedure swap_1 dan swap_2 adalah menukar nilai variable saja. Swap_1 tidak berubah nilainya karena tidak ada nilai yang dibalikan karena bukan pointer, nilai berubah hanya berlaku di dalam procedure itu saja. Swap_2 variable b dan c berubah karena pointer, jadi nilai dari variable yang ada di main.cpp berubah karena procedure tersebut
3. $pA = x1$
 $pB = x2$
 $pC = x3$
 $pD = x2$
 $pE = x2 - x1$
4. Remove_inside adalah procedure penghapus item di array berdasarkan parameter x, didalam procedure ini sudah di definisikan array di arr[]. Variable n adalah Panjang dari array, dilakukan perulangan untuk mengecek data yang belum dihapus atau data defaultnya, lalu divalidasi jika x lebih dari 0 dan kurang dari Panjang array maka si x akan ditimpa angka selanjutnya sampai angka terakhir, lalu di outputkan hasil dari array yang selesai menghapus item dari index parameter x
5. Terdapat 3 parameter x, y dan z, masing masing di kalkulasi $((x*0.4) + (y*0.35) + (z*0.25))$ lalu di validasi nilai tersebut jika lebih dari 80 mendapatkan A, lebih dari 75 mendapatkan AB, lebih dari 70 mendapatkan B, lebih dari 60 mendapatkan BC, lebih dari 50 mendapatkan BC, lebih dari 40 mendapatkan D. dan jika tidak ada kriteria diatas atau kurang dari 40 maka mendapatkan E