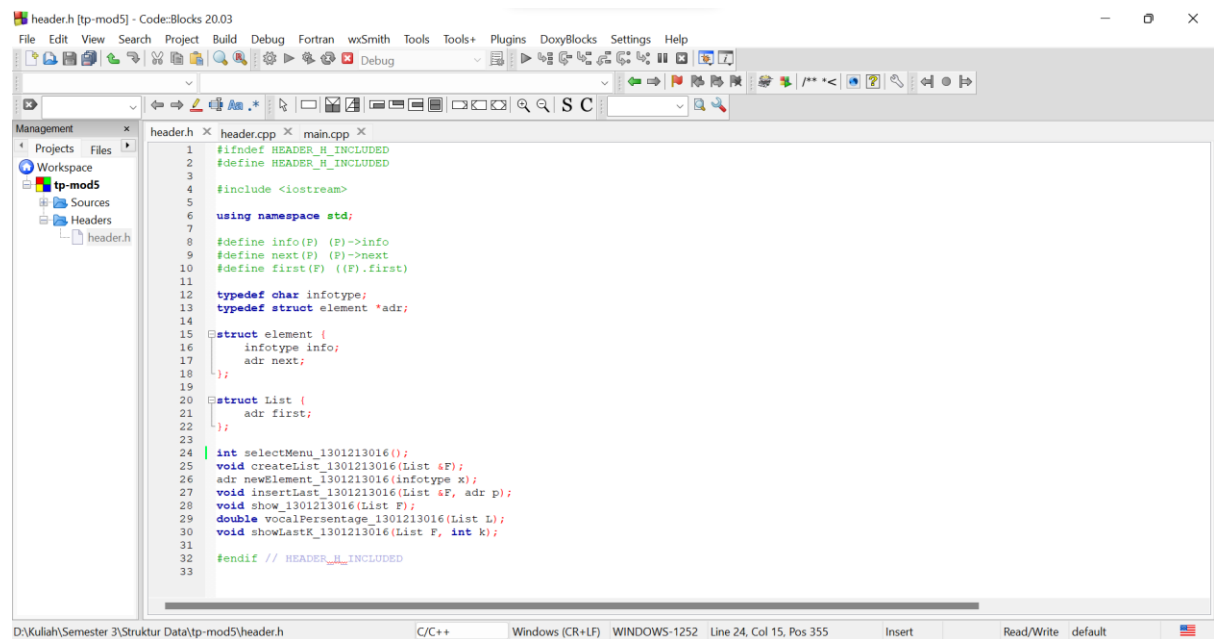
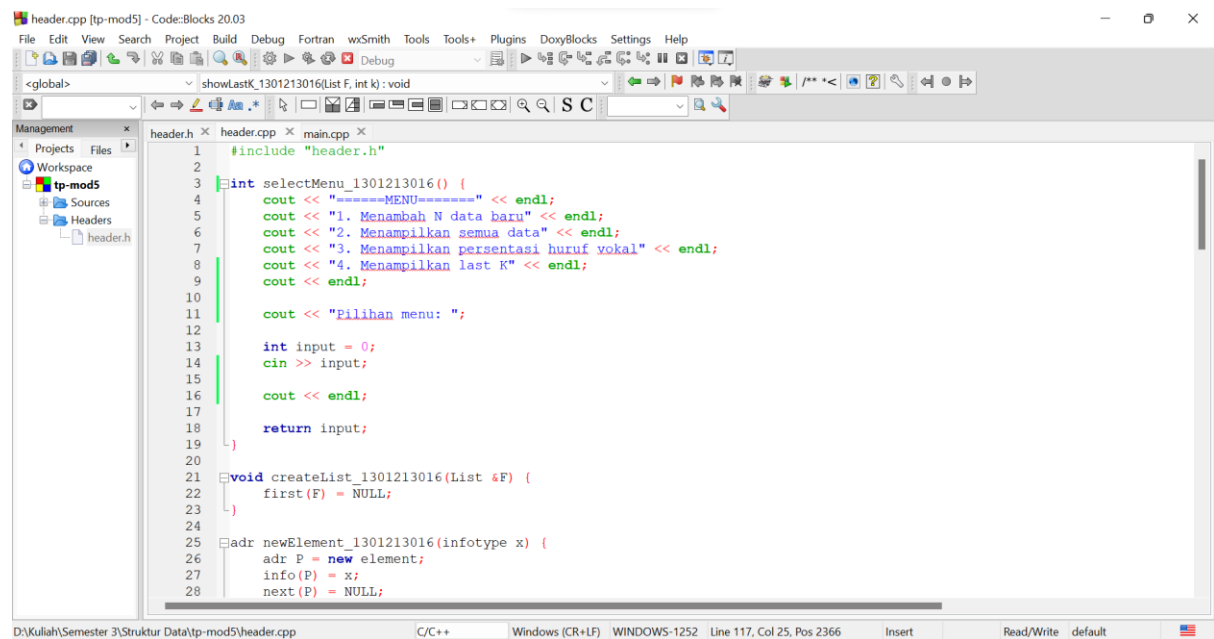


Header.h



```
1 #ifndef HEADER_H_INCLUDED
2 #define HEADER_H_INCLUDED
3
4 #include <iostream>
5
6 using namespace std;
7
8 #define info(P) (P)->info
9 #define next(P) (P)->next
10 #define first(P) ((P).first)
11
12 typedef char infotype;
13 typedef struct element *adr;
14
15 struct element {
16     infotype info;
17     adr next;
18 };
19
20 struct List {
21     adr first;
22 };
23
24 int selectMenu_1301213016();
25 void createList_1301213016(List &F);
26 adr newElement_1301213016(infotype x);
27 void insertLast_1301213016(List &F, adr p);
28 void show_1301213016(List F);
29 double vocalPercentage_1301213016(List L);
30 void showLastK_1301213016(List F, int k);
31
32 #endif // HEADER_H_INCLUDED
```

Header.cpp



```
1 #include "header.h"
2
3 int selectMenu_1301213016() {
4     cout << "=====MENU===== << endl;
5     cout << "1. Menambah N data baru" << endl;
6     cout << "2. Menampilkan semua data" << endl;
7     cout << "3. Menampilkan persentasi huruf vokal" << endl;
8     cout << "4. Menampilkan last K" << endl;
9     cout << endl;
10
11     cout << "Pilihan menu: ";
12
13     int input = 0;
14     cin >> input;
15
16     cout << endl;
17
18     return input;
19 }
20
21 void createList_1301213016(List &F) {
22     first(F) = NULL;
23 }
24
25 adr newElement_1301213016(infotype x) {
26     adr P = new element;
27     info(P) = x;
28     next(P) = NULL;
```

header.cpp [tp-mod5] - Code::Blocks 20.03

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<global> newElement_1301213016(infotype x): adr

Management Projects Files Workspace tp-mod5 Sources Headers header.h

```

25 adr newElement_1301213016(infotype x) {
26     adr P = new element;
27     info(P) = x;
28     next(P) = NULL;
29     return P;
30 }
31
32
33 void insertLast_1301213016(List &F, adr p) {
34     adr q;
35
36     if (first(F) == NULL) {
37         first(F) = p;
38     } else {
39         q = first(F);
40         while (next(q) != NULL) {
41             q = next(q);
42         }
43         next(q) = p;
44     }
45 }
46
47 void show_1301213016(List F) {
48     if (first(F) == NULL) {
49         cout << "List Kosong" << endl;
50     } else {
51         adr p = first(F);
52         while (p != NULL) {

```

D:\Kuliah\Semester 3\Struktur Data\tp-mod5\header.cpp C/C++ Windows (CR+LF) WINDOWS-1252 Line 28, Col 20, Pos 612 Insert Read/Write default

header.cpp [tp-mod5] - Code::Blocks 20.03

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<global> show_1301213016(List F): void

Management Projects Files Workspace tp-mod5 Sources Headers header.h

```

47 void show_1301213016(List F) {
48     if (first(F) == NULL) {
49         cout << "List Kosong" << endl;
50     } else {
51         adr p = first(F);
52         while (p != NULL) {
53             cout << info(p) << " ";
54             p = next(p);
55         }
56         cout << endl;
57     }
58 }
59
60 adr deleteLast_1301213016(List &F) {
61     adr p, q;
62
63     if (first(F) == NULL) {
64         p = NULL;
65         cout << "List Kosong" << endl;
66     } else if (next(first(F)) == NULL) {
67         p = first(F);
68         first(F) = NULL;
69     } else {
70         q = first(F);
71         p = first(F);
72         while (next(p) != NULL) {
73             q = p;
74             p = next(p);

```

D:\Kuliah\Semester 3\Struktur Data\tp-mod5\header.cpp C/C++ Windows (CR+LF) WINDOWS-1252 Line 52, Col 28, Pos 1060 Insert Read/Write default

header.cpp [tp-mod5] - Code::Blocks 20.03

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<global> deleteLast_1301213016(List& F): adr

Management Projects Files Workspace tp-mod5 Sources Headers header.h

```
60 adr deleteLast_1301213016(List &F) {
61     adr p, q;
62
63     if (first(F) == NULL) {
64         p = NULL;
65         cout << "List Kosong" << endl;
66     } else if (next(first(F)) == NULL) {
67         p = first(F);
68         first(F) = NULL;
69     } else {
70         q = first(F);
71         p = first(F);
72         while (next(p) != NULL) {
73             q = p;
74             p = next(p);
75         }
76         next(q) = NULL;
77     }
78     return p;
79 }
80
81 double vocalPercentage_1301213016(List F) {
82     double x = 0, y = 0, percentase = 0;
83     adr p = first(F);
84     while (p != NULL) {
85
86
```

D:\Kuliah\Semester 3\Struktur Data\tp-mod5\header.cpp C/C++ Windows (CR+LF) WINDOWS-1252 Line 74, Col 25, Pos 1544 Insert Read/Write default

header.cpp [tp-mod5] - Code::Blocks 20.03

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<global> vocalPercentage_1301213016(List F): double

Management Projects Files Workspace tp-mod5 Sources Headers header.h

```
81
82 double vocalPercentage_1301213016(List F) {
83     double x = 0, y = 0, percentase = 0;
84     adr p = first(F);
85     while (p != NULL) {
86
87         if (info(p) == 'a' || info(p) == 'A' || info(p) == 'e' || info(p) == 'E' || info(p) == 'i' || info(p) == 'I' ||
88             y++;
89
90         x++;
91         p = next(p);
92     }
93     percentase = ((y/x) * 100.0);
94     return percentase;
95 }
96
97 void showLastK_1301213016(List F, int k) {
98     int i = 0, l = 0;
99     adr p = first(F);
100     adr q = first(F);
101
102
103
104
105
106
107
108
```

D:\Kuliah\Semester 3\Struktur Data\tp-mod5\header.cpp C/C++ Windows (CR+LF) WINDOWS-1252 Line 86, Col 24, Pos 1746 Insert Read/Write default

header.cpp [tp-mod5] - Code::Blocks 20.03

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<global> showLastK_1301213016(List F, int k): void

Management Projects Files Workspace tp-mod5 Sources Headers header.h

```
100     return persentase;
101 }
102
103
104 void showLastK_1301213016(List F, int k) {
105     int i = 0, l = 0;
106     adr p = first(F);
107     adr q = first(F);
108
109     while (p != NULL) {
110         l++;
111         p = next(p);
112     }
113
114     if (l >= k) {
115         while (l < (l-k)) {
116             l++;
117             q = next(q);
118         }
119         cout << info(q) << " " << endl;
120     } else if (k > l) {
121         cout << "Nilai K lebih besar dari panjang list" << endl;
122     } else {
123         cout << "List Kosong" << endl;
124     }
125 }
126
```

D:\Kuliah\Semester 3\Struktur Data\tp-mod5\header.cpp C/C++ Windows (CR+LF) WINDOWS-1252 Line 107, Col 22, Pos 2202 Insert Read/Write default

Main.cpp

main.cpp [tp-mod5] - Code::Blocks 20.03

File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help

<global> main(): int

Management Projects Files Workspace tp-mod5 Sources Headers header.h

```
1 #include "header.h"
2 #include <iostream>
3
4 using namespace std;
5
6 int main() {
7     int pilihan = 0;
8     List F;
9     adr p;
10
11     // createList
12     createList_1301213016(F);
13
14     pilihan = selectMenu_1301213016();
15
16     while (pilihan != 0) {
17         switch(pilihan) {
18             case 1:
19                 int i, jumlah;
20                 char data;
21
22                 i = 0;
23
24                 cout << "Jumlah data yang akan ditambahkan: ";
25                 cin >> jumlah;
26
27                 while (i < jumlah) {
28                     cout << "Masukkan data baru: ";
29                 }
30             default:
31                 break;
32         }
33         pilihan = selectMenu_1301213016();
34     }
35 }
```

D:\Kuliah\Semester 3\Struktur Data\tp-mod5\main.cpp C/C++ Windows (CR+LF) WINDOWS-1252 Line 48, Col 23, Pos 973 Insert Read/Write default

```
26
27     while (i < jumlah) {
28         cout << "Masukkan data baru: ";
29         cin >> data;
30
31         p = newElement_1301213016(data);
32         insertLast_1301213016(F, p);
33
34         i++;
35     }
36
37     cout << endl;
38     break;
39
40 case 2:
41     show_1301213016(F);
42
43     cout << endl;
44     break;
45
46 case 3:
47     double d;
48     d = vocalPercentage_1301213016(F);
49     cout << "Persentase huruf vokal di dalam list: " << d << "%\n" << endl;
50
51     cout << endl;
52     break;
53 case 4:
54     int k;
```

```
50     cout << endl;
51     break;
52 case 4:
53     int k;
54
55     cout << "Masukkan nilai K: ";
56     cin >> k;
57
58     showLastK_1301213016(F, k);
59
60     cout << endl;
61     break;
62
63 }
64
65 char kembali;
66 cout << "Kembali ke menu utama? (Y/N): ";
67 cin >> kembali;
68 cout << endl;
69
70 if (kembali == 'Y') {
71     pilihan = selectMenu_1301213016();
72 } else {
73     pilihan = 0;
74 }
75
76
77 }
```

Output

```
"D:\Kuliah\Semester 3\Struktur Data\tp-mod5\bin\Debug\tp-mod5.exe"

=====MENU=====
1. Menambah N data baru
2. Menampilkan semua data
3. Menampilkan persentasi huruf vokal
4. Menampilkan last K

Pilihan menu: 1

Jumlah data yang akan ditambahkan: 10
Masukkan data baru: A
Masukkan data baru: B
Masukkan data baru: C
Masukkan data baru: D
Masukkan data baru: E
Masukkan data baru: F
Masukkan data baru: G
Masukkan data baru: H
Masukkan data baru: I
Masukkan data baru: J

Kembali ke menu utama? (Y/N): Y

=====MENU=====
1. Menambah N data baru
2. Menampilkan semua data
3. Menampilkan persentasi huruf vokal
4. Menampilkan last K

Pilihan menu: 2

A B C D E F G H I J

Kembali ke menu utama? (Y/N): Y

=====MENU=====
1. Menambah N data baru
2. Menampilkan semua data
3. Menampilkan persentasi huruf vokal
4. Menampilkan last K
```

```
"D:\Kuliah\Semester 3\Struktur Data\tp-mod5\bin\Debug\tp-mod5.exe"

Pilihan menu: 3

Persentase huruf vokal di dalam list: 30%

Kembali ke menu utama? (Y/N): Y

=====MENU=====
1. Menambah N data baru
2. Menampilkan semua data
3. Menampilkan persentasi huruf vokal
4. Menampilkan last K

Pilihan menu: 4

Masukkan nilai K: 5
F

Kembali ke menu utama? (Y/N):
```