課題１

プログラミング入門Ⅱ　演習報告書

課題番号：４

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リスト

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

struct record {

int no;

char name[10];

int point;

struct record \*next;

};

int compare\_name(char \*c1, char \*c2);

void insert\_list(int no, char \*name, int x);

struct record \*head = NULL;

int main(int argc, char \*argv[]) {

FILE \*fp;

int no, x;

char name[10], buf[256];

struct record \*p;

if (argc != 2) {

printf("missing file argument.\n");

return 1;

}

fp = fopen(argv[1], "r");

if (fp == NULL) {

printf("can't open %s\n", argv[1]);

return 1;

}

while (fgets(buf, sizeof(buf), fp) != NULL) {

sscanf(buf, "%d %s %d", &no, name, &x);

insert\_list(no, name, x);

}

fclose(fp);

for (p = head; p != NULL; p = p->next)

printf("%d %s %d\n", p->no, p->name, p->point);

return 0;

}

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void insert\_list(int no, char \*name, int x)

{

struct record \*p, \*q, \*t;

t = (struct record \*)malloc(sizeof(struct record));

if (t == NULL) {

printf("Out of memory\n");

exit(1);

}

t->no = no;

strcpy(t->name, name);

t->point = x;

q = NULL;

for (p = head; p != NULL; p = p->next) {

if (compare\_name(p->name, name) <= -1)

break;

q = p;

}

if (q != NULL)

q->next = t;

else

head = t;

t->next = p;

}

/\* if c1 go ahead of c2, this returns negative value;

\* if c2 go ahead of c1, this returns positive value;

\* otherwise, this returns 0.

\*/

int compare\_name(char \*c1, char \*c2)

{

int i;

for(i = 0; ; i++) {

if (c1[i] == '\0' && c2[i] != '\0')

return 1;

if (c2[i] == '\0' && c1[i] != '\0')

return -1;

if (c1[i] == '\0' && c2[i] == '\0')

return 0;

if (c1[i] > c2[i])

return -1;

else if (c1[i] < c2[i])

return 1;

}

}

実行結果

cosmos09:4\_120130 s1111361$ ./q4\_1 prog2-ex4-data.txt

200711109 Akiyama 80

200711118 Hayashi 66

200711108 Kameda 44

200711106 Kato 70

200711119 Kawasaki 40

200711114 Kimura 85

200711103 Kojima 10

200711107 Kudou 40

200711110 Kuno 10

200711115 Matumoto 70

200711104 Miura 12

200711120 Nagai 35

200711113 Nakamura 95

200711102 Ojima 30

200711117 Saitou 95

200711111 Sato 50

200711112 Suda 65

200711105 Suzuki 60

200711101 Takahasi 60

200711116 Yamada 33

課題2

リスト

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

struct record {

int no;

char name[10];

int point;

struct record \*next;

};

void insert\_list(int no, char \*name, int x);

struct record \*head = NULL;

int main(int argc, char \*argv[]) {

FILE \*fp;

int no, x;

char name[10], buf[256];

struct record \*p;

if (argc != 2) {

printf("missing file argument.\n");

return 1;

}

fp = fopen(argv[1], "r");

if (fp == NULL) {

printf("can't open %s\n", argv[1]);

return 1;

}

while (fgets(buf, sizeof(buf), fp) != NULL) {

sscanf(buf, "%d %s %d", &no, name, &x);

if (x >= 60)

insert\_list(no, name, x);

}

fclose(fp);

for (p = head; p != NULL; p = p->next)

printf("%d %s %d\n", p->no, p->name, p->point);

return 0;

}

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void insert\_list(int no, char \*name, int x)

{

struct record \*p, \*q, \*t;

t = (struct record \*)malloc(sizeof(struct record));

if (t == NULL) {

printf("Out of memory\n");

exit(1);

}

t->no = no;

strcpy(t->name, name);

t->point = x;

q = NULL;

for (p = head; p != NULL; p = p->next) {

if (p->point <= x)

break;

q = p;

}

if (q != NULL)

q->next = t;

else

head = t;

t->next = p;

}

実行結果

cosmos09:4\_120130 s1111361$ ./q4\_2 prog2-ex4-data.txt

200711117 Saitou 95

200711113 Nakamura 95

200711114 Kimura 85

200711109 Akiyama 80

200711115 Matumoto 70

200711106 Kato 70

200711118 Hayashi 66

200711112 Suda 65

200711105 Suzuki 60

200711101 Takahasi 60