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2	8	04	20	22		

PROGRAM 1

Write a C program to read series of names, one per line, from standard input and write these names spelled in reverse order to standard output using I/O redirection and pipes.

Repeat the exercise using input file specified by the user instead of the standard input and output file specified by the user instead of standard output.

```
#include <iostream.h>
#include <fstream.h>
#include <conio.h>
#include <string.h>
#include <process.h>
void main()
{
    fstream fpl, fp2;
    char fin[10], fout[10];
    int ch, n, i;
    char str[10], name[10][10];
    clrscr();
    for(;;)
    {
        cout << "1: Std Input to Std Output" << endl;
        cout << "2: File to Std Output" << endl;
        cout << "3: File to File \n";
        cout << "Enter your choice:" << endl;
        cin >> ch;
        switch(ch)
        {
            case 1: cout << "Enter Number of Records:";
```



OUTPUT:

Run 1:
 1. std input to std output 2. File to Std Output
 Enter your choice: 1
 Enter number of records: 1
 Enter 1 name : Ayushi
 Reversed names are ---
 ihsuuya

Run 2:

1. std input to std output 2: File to Std Output
 3. File to file
 Enter your choice: 2
 Enter input filename: ayu.txt
 ihsuuya
 ayuak
 hsaka

Run 3:

1. Std input to Std Output 2. File to Std Output
 3. File to file
 Enter your choice: 3
 Enter the input filename: ayu.txt
 Enter the output filename: ayu1.txt



DD	MM	YY	YY
08	04	20	22

```

  cin >> ch;
  cout << " Enter " << n << " Names: ";
  for (i=0; i<n; i++)
  {
    cin >> names[i];
  }
  cout << " Reversed names are --- " << endl;
  for (i=0; i<n; i++)
  {
    strrev(name[i]);
    cout << name[i];
    cout << "\n";
  }
  break;
  case 2: cout << " Enter the Input filename: ";
  cin >> fin;
  fpl.open (fin, ios::in);
  while (!fpl.fail())
  {
    fpl >> str;
    strrev(str);
    cout << str;
    cout << "\n";
  }
  fpl.close();
  break;
  case 3: cout << " Enter the Input filenames: ";
  un >> fin;
  cout << " Enter the Output filename: ";
  
```

D D	M M	Y Y	Y Y
28	04	20	22

```
cin >> fout;
fp1.open(fin, ios::in);
fp2.open(fout, ios::out);
while(!fp1.fail())
{
    fp1 >> str;
    strrev(str);
    fp2 << str;
    fp2 << "\n";
}
fp1.close();
fp2.close();
break;
default: exit(0);
}
```

D	D	M	M	Y	Y	Y	Y
05	05	20	22				

PROGRAM 2

Write a C++ program to read and write student objects with fixed length records and the fields delimited by ". Implement pack(), unpack(), modify() and search() methods.

```
#include <iostream.h>
#include <fstream.h>
#include <stdio.h>
#include <iomanip.h>
#include <string.h>
#define SIZE 55
char buffer[SIZE+1];
class Student
{
    char usn[15];
    char name[20];
    char age[5];
    char marks[10];
public:
    void getData();
    void putData();
    void pack();
    void unpack();
    void insert();
    void display();
    void modify(char *key);
    void search(char *key);
};
```

OUTPUT:

1. insert
2. display
3. search
4. Modify
5. Exit

1.

Enter the usn, name, age, marks:

IAM19IS015

Ayushi

20

48

DONE!!

1. Insert

2. Display

3. Search

4. Modify

5. Exit

2

The contents are:

IAM19IS015 Ayushi

20 48

DONE!!



D	D	M	M	Y	Y	Y
05	05	20	22			

void Student :: getData()

{

cout << " Enter usn, name, age, marks: \n";
cin >> usn >> name >> age >> marks;

}

void Student :: putData()

{

cout << usn << " \t " << name << " \t \t " << age << " \t " << marks << endl;

}

void Student :: pack()

{

strcpy (buffer, usn); strcat (buffer, " \t ");
strcat (buffer, name); strcat (buffer, " \t ");
strcat (buffer, age); strcat (buffer, " \t ");
strcat (buffer, marks);
while (strlen (buffer) < SIZE - 1)

{

strcat (buffer, "#");

}

strcat (buffer, "\n");

}

void Student :: unpack()

{

char * p;
p = strtok (buffer, " \t "); strcpy (usn, p);
p = strtok (NULL, " \t "); strcpy (name, p);
p = strtok (NULL, " \t "); strcpy (age, p);
p = strtok (NULL, "#"); strcpy (marks, p);

}

1. Insert
2. Display
3. Search
4. Modify
5. Exit

3.
Enter the key USN: IAM19IS015

Total records found: 1

DONE!!

1. Insert
2. Display
3. Search
4. Modify
5. Exit

4.
Enter the USN to modify: IAM19IS015

Enter the usn, name, age, marks:
IAM19IS007

Anju

21

50

Modified

DONE!!

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```

void student :: insert()
{
    getData();
    pack();
    ofstream fout("record.txt", ios::app);
    fout << buffer;
    fout.close();
}

void student :: display()
{
    ifstream fin("record.txt");
    while (!fin.eof())
    {
        fin.getline(buffer, SIZE + 1, '\n');
        if (fin.fail())
            break;
        unpack();
        putData();
    }
    fin.close();
}

void student :: search(char *key)
{
    ifstream fin("record.txt");
    int count = 0;
    while (!fin.eof())
    {
        fin.getline(buffer, SIZE + 1, '\n');
        if (fin.eof())

```



1. Insert
2. Display
3. Search
4. Modify
5. Exit

2.

The contents are :

1AM1455005 Augu 21 50

DONE!!

1. Insert
2. Display
3. Search
4. Modify
5. Exit

5.



DD	MM	YY	YYYY
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```

break;
unpack;
if(strncmp(un, key)==0)
{
    putData();
    count++;
}

```

}

cout<< "Total records found : "<<count<<endl;

fin.close();

}

```

void Student :: modify (char *key)
{

```

```

ifstream fin(" record.txt");
ofstream fout(" temp.txt");
int count = 0;
while (!fin.eof())
{

```

```

    fin.getline(buffer, SIZE+1, '\n');
    if (fin.fail())
        break;
    unpack();
    if (strcmp == (usn, key) == 0)
    {

```

```

        getData();
        count++;
    }

```

```

    pack();

```

```

    fout<< buffer;
}
```

3

```

if(count == 0)
    cout << " USN not found " << endl;
else
    cout << " Modified " << endl;
fin.close();
fout.close();
remove (" record.txt ");
rename (" temp.txt ", " record.txt ");

```

3

int main()

{

```

int choice;
Student s;
char key[15];
clrscr();
while(1)
{

```

{

```

cout << " 1. Insert \n"
    << " 2. Display \n"
    << " 3. Search \n"
    << " 4. Modify \n"
    << " 5. Exit \n" << endl;

```

cin >> choice;

switch(choice)

{

case 1:

s.insert();

cout << " DONE!! " << endl;

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05	05	2022

break;

case 2 :

```
cout << " The contents are : " << endl;
s.display();
cout << " DONE!! " << endl;
break;
```

case 3 :

```
cout << " Enter the key USN : ";
cin >> key;
s.search(key);
cout << " DONE!! " << endl;
break;
```

case 4 :

```
cout << " Enter the USN to modify " ;
cin >> key;
s.modify(key);
cout << " DONE!! " << endl;
break;
```

default :

```
return 0;
```

}

}

}

PROGRAM 3

Write a C++ program to read and write student object with variable length records using any suitable record structures. Implement pack(), unpack(), modify() and search() methods.

```
#include <iostream.h>
#include <fstream.h>
#include <stdio.h>
#include <conio.h>
#include <string.h>
#define SIZE 55
char buffer [SIZE+1];
class Student
{
    char usn[15];
    char name[20];
    char age[5];
    char marks[10];
public :
    void getData();
    void putData();
    void pack();
    void unpack();
    void insert();
    void display();
    void modify(char *key);
    void search(char *key);
};
```

OUTPUT -

1. Insert
2. Display
3. Search
4. Modify
5. Exit

1.

Enter usn, name, age, marks:

IAM19IS015

Ayushi

20

45

DONE!!

1. Insert

2. Display

3. Search

4. Modify

5. Exit

2.

The contents are :

IAM19IS015 Ayushi 20 45



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12 05 2022

```

void Student :: getData()
{
    cout << " Enter usn, name, age, marks :\n";
    cin >> usn >> name >> age >> marks;
}

void Student :: putData()
{
    cout << usn << "\t" << name << "\t\t" << age << "\t" << marks << endl;
}

void Student :: pack()
{
    strcpy(buffer, usn); strcat(buffer, "\0");
    strcat(buffer, name); strcat(buffer, "\0");
    strcat(buffer, age); strcat(buffer, "\0");
    strcat(buffer, marks);
    strcat(buffer, "\n");
}

void Student :: unpack()
{
    char *p;
    p = strtok(buffer, "\0"); strcpy(usn, p);
    p = strtok(NULL, "\0"); strcpy(name, p);
    p = strtok(NULL, "\0"); strcpy(age, p);
    p = strtok(NULL, "\n"); strcpy(marks, p);
}

void Student :: insert()
{
    getData();
    pack();
}

```

AMC EDUCATION

1. Insert
2. Display
3. Search
4. Modify
5. Exit

Enter the key USN: IAM19IS015
Total records found: 1
DONE!!

1. Insert
2. Display
3. Search
4. Modify
5. Exit

Enter the USN to modify: IAM19IS015
Enter the USN, name, age, marks:
IAM19IS007 Akash 20 48
Modified
DONE!!

AMC ENGINEERING COLLEGE

DD M M Y Y Y Y
12 05 2022

```

ofstream fout("record.txt", ios::app);
fout << buffer;
fout.close();
}

void Student::display()
{
    ifstream fin("record.txt");
    while (!fin.eof())
    {
        fin.getline(buffer, SIZE+1, '\n');
        if (fin.fail())
            break;
        unpack();
        putData();
    }
    fin.close();
}

void Student::search(char *key)
{
    ifstream fin("record.txt");
    int count = 0;
    while (!fin.eof())
    {
        fin.getline(buffer, SIZE+1, '\n');
        if (fin.fail())
            break;
        unpack();
        if (strcmp(un, key) == 0)
            count++;
    }
    cout << "Total records found: " << count;
}

```

AMC ENGINEERING COLLEGE

1. Insert
2. Display
3. Search
4. Modify
5. Exit

The contents are:

IAMM12S007 Akash 80 48

DONE!!

1. Insert
2. Display
3. Search
4. Modify
5. Exit



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18	05	2023				

```

putData();
count++;
}
}

cout << " Total records found : " << count << endl;
fin.close();
}

void Student :: modify (char * key)
{
ifstream fin (" record.txt ");
ofstream fout (" temp.txt ");
int count = 0;
while (!fin.eof ())
{
fin.getline (buffer, SIZE + 1, '\n');
if (fin.fail ())
break;
unpack ();
if (strcmp (usn, key) == 0)
{
getData ();
count++;
}
pack ();
fout << buffer;
}
if (count == 0)
cout << " USN not found " << endl;
else

```

D	D	M	M	Y	Y	Y
12	05	20	22			

```

cout << "Modified" << endl;
fin.close();
fout.close();
remove (" record.txt");
rename (" temp.txt", " record.txt");
}

```

```
int main()
```

```
{
```

```

int choice;
Student s;
char key[15];

```

```
clrscr();
```

```
while(1)
```

```
{
```

```

cout << " 1. Insert \n"
<< " 2. Display \n"
<< " 3. Search \n"
<< " 4. Modify \n"
<< " 5. Exit \n" << endl;

```

```
cin >> choice;
```

```
switch(choice)
```

```
{
```

```
case 1 :
```

```
s.insert();
```

```
cout << "DONE!!" << endl;
```

```
break;
```

```
case 2:
```

```
cout << "The contents are :" << endl;
```

```
s.display();
```

```
cout << " DONE!! " << endl;  
break;
```

case 3 :

```
cout << " Enter the key USN : ";  
cin >> key;  
s. search(key);  
cout << " DONE!! " << endl;  
break;
```

case 4 :

```
cout << " Enter the USN to modify : ";  
cin >> key;  
s. modify(key);  
cout << " DONE!! " << endl;  
break;
```

default :

```
return 0;
```

}

}

}

PROGRAM 4

Write a C++ program to read and write Student object with variable-length records using any suitable record structure and to read this file a student record using RRN.

```
#include <iostream.h>
#ifndef include <fstream.h>
#include <stdio.h>
#include <conio.h>
#include <string.h>
#include <stdlib.h>
#define SIZE 55
char buffer[SIZE+1];
int globalRRN=0;
class student
{
    char rrn[15];
    char name[20];
    char age[5];
    char marks[10];
public:
    void getData();
    void putData();
    void insert();
    void display();
    void pack();
    void unpack();
    void search(char *key);
}
```

};

void Student:: getData()

}

cout << "Enter the name, age, marks: \n";

(in>> name >> age >> marks);

itoa (++ globalPRN, rrn, 10);

}

void Student:: putData()

{

cout << rrn << "\t" << name << "\t\t" << age << "\t" << marks <<

endl;

}

void Student:: pack()

{

strcpy (buffer, rrn); strcat (buffer, "\t");

strcat (buffer, name); strcat (buffer, "\t");

strcat (buffer, age); strcat (buffer, "\t");

strcat (buffer, marks);

strcat (buffer, "\n");

}

void Student:: unpack()

{

char * p;

p = strtok (buffer, "\t"); strcpy (rrn, p);

p = strtok (NULL, "\t"); strcpy (name, p);

p = strtok (NULL, "\t"); strcpy (age, p);

p = strtok (NULL, "\n"); strcpy (marks, p);

}



Output -

1. Insert

2. Display

3. Search

4. Exit

1.

Enter the name, age, marks:

Ayushi

20

45

DONE!!

1. Insert

2. Display

3. Search

4. Exit

2.

The contents are:

1 Ayushi 20 45

DONE!!



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25 05 2029

```
void student:: insert()
```

```
{
```

```
getData();
```

```
pack();
```

```
ofstream fout (" record.txt ", ios::app);
```

```
fout << buffer;
```

```
fout.close();
```

```
}
```

```
void student:: display()
```

```
{
```

```
ifstream fin (" record.txt ");
```

```
while (!fin.eof())
```

```
{
```

```
fin.getline (buffer, SIZE+1, '\n');
```

```
if (fin.fail())
```

```
break;
```

```
unpark();
```

```
putData();
```

```
}
```

```
fin.close();
```

```
}
```

```
void student:: search (char *key)
```

```
{
```

```
ifstream fin (" record.txt ");
```

```
int count=0;
```

```
while (!fin.eof())
```

```
{
```

```
fin.getline (buffer, SIZE+1, '\n');
```

```
if (fin.fail())
```

1. Insert

2. Display

3. Search

4. Exit

3

Enter the key rrn: 1

1 Ayushi 20 95

Total records found: 1

DONE!!

1. Insert

2. Display

3. Search

4. Exit

4.



DD MM YYYY
25 05 2022

```
break;
unpack();
if(strcmp(rrn, key) == 0)
{
```

```
putData();
count++;
}
```

```
}
```

```
int main()
```

```
{
```

```
int choice;
Student s;
char key[15];
clrscr();
while(1)
```

```
{
```

```
cout << "1. Insert \n"
```

```
<< "2. Display \n"
```

```
<< "3. Search \n"
```

```
<< "4. Exit \n" << endl;
```

```
cin >> choice;
switch(choice)
```

```
{
```

```
case 1:
```

```
s.Insert();
```

```
cout << "DONE!!" << endl;
```

D	D	M	M	Y	Y	Y	Y
25	05	20	22				

break;

case 2:

cout << "The contents are : " << endl;

s.display();

cout << "DONE!!" << endl;

break;

case 3:

cout << "Enter the key RRN:";

cin >> key;

s.search(key);

cout << "DONE!!" << endl;

break;

default:

return 0;

}

}

}