**SSN COLLEGE OF ENGINEERING (Autonomous)**

**Affiliated to Anna University,**

# Chennai DEPARTMENT OF CSE

# UCS 1211 PROGRAMMING IN C LABORATORY

# A5: Pointers in C

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**1.Word Frequency count**

**Program**

#include<stdio.h>

#include<string.h>

void main()

{

char str[100],sub[100],new[100];

printf("\n Enter a sentence:");

scanf(" %[^\n]",str);

printf("\n Enter the word to be found:");

scanf(" %[^\n]",sub);

int i,k=0,count=0;

for(i=0;i<=strlen(str);i++)

{

if(\*(str+i)!=' '&&\*(str+i)!='\0')

\*(new+k++)=\*(str+i);

else

{

\*(new+k)='\0';

if(strcmp(sub,new)==0)

count++;

k=0;

}

}

printf("The no of times \'%s\' occurs is %d \n",sub,count);

}

**output**

cseb112@JTL-10:~$ gcc 5.1.c -o 5.1

cseb112@JTL-10:~$ ./5.1

Enter a sentence:

hi hi hi

Enter the word to be found:

hi

The no of times hi occurs is 3

**2.wordsplit**

**program**

#include <stdio.h>

#include <string.h>

void main()

{

char str[10][200];

int row=0,i,l,k=0,j=0;

char \*pointer[10];

printf("Enter the lines.Enter End to stop\n");

while(1)

{

scanf(" %[^\n]",str[row]);

l=strlen(str[row]);

pointer[row]=str[row];

if (str[row][l-3]=='E' && str[row][l-2]=='n' && str[row][l-1]=='d')

{

str[row][l-4]='\0';

break;

}

row++;

}

for(i=0;i<=row;i++)

{

j=0;

while(\*(pointer[i]+j)!='\0')

{

if (\*(pointer[i]+j)==' ')

{

k++;

}

j++;

}

k++;

}

printf("\nNumber of tokens : %d",k-1);

}

**output**

cseb112@JTL-10:~$ gcc 5.2.c -o 5.2

cseb112@JTL-10:~$ ./5.2

Enter the lines.Enter End to stop

hi dude

how are you

iam fine

End

Number of tokens : 7

**3a.Modify 11.22**

**program**

**calculate the sum of the elements in two tables of integers**

**each 2-dimensional array is processed as an array**

**of pointers to a set of 1-dimensional integer arrays**

#include <stdio.h>

#include <stdlib.h>

#define MAXROWS 20

void readinput (int (\*a)[MAXROWS], int nrows, int ncols);

void compare(int (\*a)[MAXROWS], int (\*b)[MAXROWS],int (\*c)[MAXROWS], int nrows, int ncols);

void writeoutput(int (\*c)[MAXROWS], int nrows, int ncols);

void main( )

{

int row, nrows, ncols;

int (\*a)[MAXROWS], (\*b)[MAXROWS], (\*c)[MAXROWS];

printf( "No. of rows: ");

scanf( "%d", &nrows);

printf("No. of columns: ");

scanf("%d", &ncols);

a=(int \*)malloc(nrows\*ncols\*sizeof(int));

b=(int \*)malloc(nrows\*ncols\*sizeof(int));

c=(int \*)malloc(nrows\*ncols\*sizeof(int));

printf("\nFirst table:\n");

readinput(a, nrows, ncols);

printf("\nSecond table:\n");

readinput(b, nrows, ncols);

compare(a, b, c, nrows, ncols);

printf ("\nTable of large elements:\n");

writeoutput(c, nrows, ncols);

}

void readinput(int (\*a)[MAXROWS], int m, int n)

{

int row, col;

for (row = 0; row < m; ++row)

{

printf("\nEnter data for row no. %2d\n", row + 1);

for (col = 0; col < n; ++col)

scanf("%d", (\*(a + row) + col));

}

return;

}

void compare(int (\*a)[MAXROWS], int (\*b)[MAXROWS], int (\*c)[MAXROWS], int m, int n)

{

int row, col;

for (row = 0; row < m; ++row)

for (col = 0; col < n; ++col)

\*(\*(c + row) + col) = (\*(\*(a + row) + col)>\*(\*(b + row) + col))?\*(\*(a + row) + col):\*(\*(b + row) + col);

return;

}

void writeoutput(int (\*a)[MAXROWS], int m, int n)

{

int row, col;

for (row = 0; row < m; ++row)

{

for (col = 0; col < n; ++col)

printf("%4d", \*(\*(a + row) + col));

printf ("\n") ;

}

return;

}

**output**

cseb112@JTL-10:~$ gcc 5.3.1.c -o 5.3.1

cseb112@JTL-10:~$ ./5.3.1

No. of rows: 2

No. of columns: 2

First table:

Enter data for row no. 1

1

2

Enter data for row no. 2

9

8

Second table:

Enter data for row no. 1

7

6

Enter data for row no. 2

3

4

Table of large elements:

7 6

9 8

**3b.Modify 11.22**

**program**

**calculate the sum of the elements in two tables of integers**

**each 2-dimensional array is processed as an array**

**of pointers to a set of 1-dimensional integer arrays**

#include <stdio.h>

#include <stdlib.h>

#define MAXROWS 20

void readinput (int \*a[MAXROWS], int nrows, int ncols);

void compare(int \*a[MAXROWS], int \*b[MAXROWS],int \*c[MAXROWS], int nrows, int ncols);

void writeoutput(int \*c[MAXROWS], int nrows, int ncols);

void main( )

{

int row, nrows, ncols;

int \*a[MAXROWS], \*b[MAXROWS], \*c[MAXROWS];

printf( "No. of rows: ");

scanf( "%d", &nrows);

printf("No. of columns: ");

scanf("%d", &ncols);

for (row = 0; row < nrows; ++row)

{

a[row] = (int \*) malloc (ncols \* sizeof(int));

b[row] = (int \*) malloc (ncols \* sizeof(int));

c[ row] = (int \*) malloc (ncols \* sizeof (int));

}

printf("\nFirst table:\n");

readinput(a, nrows, ncols);

printf("\nSecond table:\n");

readinput(b, nrows, ncols);

compare(a, b, c, nrows, ncols);

printf ("\nTable of large elements:\n");

writeoutput(c, nrows, ncols);

}

void readinput(int \*a[MAXROWS], int m, int n)

{

int row, col;

for (row = 0; row < m; ++row)

{

printf("\nEnter data for row no. %2d\n", row + 1);

for (col = 0; col < n; ++col)

scanf("%d", (\*(a + row) + col));

}

return;

}

void compare(int \*a[MAXROWS], int \*b[MAXROWS], int \*c[MAXROWS], int m, int n)

{

int row, col;

for (row = 0; row < m; ++row)

for (col = 0; col < n; ++col)

\*(\*(c + row) + col) = (\*(\*(a + row) + col)>\*(\*(b + row) + col))?\*(\*(a + row) + col):\*(\*(b + row) + col);

return;

}

void writeoutput(int \*a[MAXROWS], int m, int n)

{

int row, col;

for (row = 0; row < m; ++row)

{

for (col = 0; col < n; ++col)

printf("%4d", \*(\*(a + row) + col));

printf ("\n") ;

}

return;

}

**output**

cseb112@JTL-10:~$ gcc 5.3.2.c -o 5.3.2

cseb112@JTL-10:~$ ./5.3.2

No. of rows: 2

No. of columns: 2

First table:

Enter data for row no. 1

1

2

Enter data for row no. 2

9

8

Second table:

Enter data for row no. 1

7

6

Enter data for row no. 2

3

4

Table of large elements:

7 6

9 8

**4.days count**

## Program

#include<stdio.h>

long nodays(int mm, int dd, int yyyy)

{

long ndays;

ndays=(long)(30.42\*(mm-1)+dd);

if (mm==2)

ndays+=1;

else if(mm>2 && mm<8)

ndays-=1;

yyyy-=1900;

if(yyyy%4==0 &&mm>2)

ndays+=1;

ndays+=(yyyy/4)\*1461;

ndays+=(yyyy%4)\*365+1;

if(ndays>59)

ndays-=1;

return ndays;

}

void main()

{

int mm1,mm2,dd1,dd2,yyyy1,yyyy2;

long n1,n2,diff;

printf("\n\nTO CALCULATE NO OF DAYS BETWEEN TWO DATES ");

printf("\n\nEnter a date as (mm dd yyyy): ");

scanf("%2d %2d %4d",&mm1,&dd1,&yyyy1);

n1=nodays(mm1,dd1,yyyy1);

printf("\nEnter another date as (mm dd yyyy): ");

scanf("%2d %2d %4d",&mm2,&dd2,&yyyy2);

n2=nodays(mm2,dd2,yyyy2);

diff=n1-n2;

if (diff>0)

printf("\n\n %d days are there between %d %d %d and %d %d %d \n",diff,mm1,dd1,yyyy1,mm2,dd2,yyyy2);

else

printf("\n\n %d days are there between %d %d %d and %d %d %d \n",-diff,mm2,dd2,yyyy2,mm1,dd1,yyyy1);

}

**output**

cseb112@JTL-10:~$ gcc 5.4.c -o 5.4

cseb112@JTL-10:~$ ./5.4

TO CALCULATE NO OF DAYS BETWEEN TWO DATES

Enter the dates as(mm dd yyyy)

Enter a date as (mm dd yyyy): 10 25 2019

Enter another date as (mm dd yyyy): 03 31 2019

6730 days are there between 10 25 2000 and 03 31 2019

**5. Calculate interest**

**Program**

personal finance calculations

#include <stdio.h>

#include <stdlib.h>

#include <ctype.h>

#include <math.h>

void table (double (\*pf)(double i,int m, double n), double a, int m,double n);

double md1(double i,int m, double n);

double md2(double i,int m, double n);

double md3(double i,int m, double n);

void main( )

{

int m,I;

double n;

double a;

char freq;

printf("\nFUTURE VALUE OF A SERIES OF MONTHLY DEPOSITS\n");

printf("Amount of Each Monthly Payment: ");

scanf ("%lf", &a) ;

printf("Number of Years: ");

scanf ("%lf", &n) ;

printf("\t\t\tA = %.2lf\n\t\t\tn = %.2lf \n",a,n);

printf("\nInterest Rate = ");

for(i=5;i<=15;i++)

{

printf("%2d",i);

printf("%%");

printf(" ");

}

printf("\n");

printf("Frequency of\nCompounding:\n");

i=0;

do

{

freq=i;

if (freq == 0)

{

m = 1;

printf( "\nAnnual\nCompounding " ) ;

table(md1, a, m, n);

}

if (freq == 1)

{

m = 2;

printf( "\nSemiannual\nCompounding " );

table(md1, a, m, n);

}

if (freq == 2)

{

m = 4;

printf("\nQuarterly\nCompounding ");

table(md1, a, m, n);

}

if (freq == 3)

{

m = 12;

printf("\nMonthly\nCompounding ");

table(md1, a, m, n);

}

if (freq == 4)

{

m = 360;

printf("\nDaily\nCompounding ");

table(md2, a, m, n);

}

if (freq == 5)

{

m = 0;

printf("\nContinuous\nCompounding ");

table(md3, a, m, n);

}

i++;

}while(i<6);

}

void table (double (\*pf)(double i, int m, double n), double a, int m, double n)

{

int count;

double i;

double f;

for (count = 5; count <= 15; ++count)

{

i= 0.01 \* count;

f = a \* (\*pf)(i, m, n);

printf("%-12.2f" ,f);

}

printf("\n");

return;

}

double md1 (double i, int m, double n)

{

double factor, ratio;

factor = 1 + i/m;

ratio = 12 \* (pow(factor, m\*n) - 1) / i;

return(ratio);

}

double md2(double i,int m, double n)

{

double factor, ratio;

factor = 1 + i/m;

ratio = (pow(factor, m\*n) - 1) / (pow(factor, m/12) - 1);

return( ratio) ;

}

double md3(double i,int dummy, double n)

{

double ratio;

ratio = (exp(i\*n) - 1) / (exp(i/12) - 1);

return(ratio);

}

**output**

cseb112@JTL-10:~$ gcc 5.5.1.c -o 5.5.1

cseb112@JTL-10:~$ ./5.5.1

FUTURE VALUE OF A SERIES OF MONTHLY DEPOSITS

Amount of Each Monthly Payment: 100

Number of Years: 2

A = 100.00

n = 2.00

Interest Rate = 5% 6% 7% 8% 9% 10% 11% 12% 13% 14% 15%

Frequency of

Compounding:

Annual

Compounding 2460.00 2472.00 2484.00 2496.00 2508.00 2520.00 2532.00 2544.00 2556.00 2568.00 2580.00

Semiannual

Compounding 2491.51 2510.18 2528.97 2547.88 2566.91 2586.08 2605.36 2624.77 2644.30 2663.97 2683.75

Quarterly

Compounding 2507.67 2529.85 2552.26 2574.89 2597.75 2620.83 2644.15 2667.70 2691.48 2715.51 2739.77

Monthly

Compounding 2518.59 2543.20 2568.10 2593.32 2618.85 2644.69 2670.86 2697.35 2724.17 2751.32 2778.81

Daily

Compounding 2518.84 2543.56 2568.60 2593.97 2619.69 2645.74 2672.14 2698.90 2726.01 2753.48 2781.33

Continuous

Compounding 2518.85 2543.57 2568.62 2594.00 2619.72 2645.78 2672.19 2698.95 2726.07 2753.56 2781.41

personal finance calculations

**Program**

#include <stdio.h>

#include <stdlib.h>

#include <ctype.h>

#include <math.h>

float s[20][20];

int x=0,y=0;

void table (double (\*pf)(double i,int m, double n), double a, int m,double n);

double md1(double i,int m, double n);

double md2(double i,int m, double n);

double md3(double i,int m, double n);

void main( )

{

int m,i,k;

double n;

double a;

char freq;

printf("\nFUTURE VALUE OF A SERIES OF MONTHLY DEPOSITS\n");

printf("Amount of Each Monthly Payment: ");

scanf ("%lf", &a) ;

printf("Number of Years: ");

scanf ("%lf", &n) ;

printf("\t\t\tA = %.2lf\n\t\t\tn = %.2lf \n",a,n);

printf("\nInterest Rate ");

i=0;

do

{

freq=i;

if (freq == 0)

{

m = 1;

printf( " Annual " ) ;

table(md1, a, m, n);

}

if (freq == 1)

{

m = 2;

printf( " Semiannual " );

table(md1, a, m, n);

}

if (freq == 2)

{

m = 4;

printf(" Quarterly");

table(md1, a, m, n);

}

if (freq == 3)

{

m = 12;

printf(" Monthly ");

table(md1, a, m, n);

}

if (freq == 4)

{

m = 360;

printf(" Daily Compounding");

table(md2, a, m, n);

}

if (freq == 5)

{

m = 0;

printf(" Continuous \n");

table(md3, a, m, n);

}

i++;

}while(i<6);

for(i=5;i<16;i++)

{

printf(" %2.0d",i);

printf("%%");

printf(" ");

for(k=0;k<6;k++)

printf(" %-12.2f ",s[k][i]);

printf("\n");

}

}

void table (double (\*pf)(double i, int m, double n), double a, int m, double n)

{

int count;

double i;

double f;

y=0;

for (count = 5; count <= 15; ++count,y++)

{

i= 0.01 \* count;

f = a \* (\*pf)(i, m, n);

s[x][count]=f;

}

x++;

return;

}

double md1 (double i, int m, double n)

{

double factor, ratio;

factor = 1 + i/m;

ratio = 12 \* (pow(factor, m\*n) - 1) / i;

return(ratio);

}

double md2(double i,int m, double n)

{

double factor, ratio;

factor = 1 + i/m;

ratio = (pow(factor, m\*n) - 1) / (pow(factor, m/12) - 1);

return( ratio) ;

}

double md3(double i,int dummy, double n)

{

double ratio;

ratio = (exp(i\*n) - 1) / (exp(i/12) - 1);

return(ratio);

}

**output**

cseb112@JTL-10:~$ gcc 5.5.2.c -o 5.5.2

cseb112@JTL-10:~$ ./5.5.2

FUTURE VALUE OF A SERIES OF MONTHLY DEPOSITS

Amount of Each Monthly Payment: 100

Number of Years: 2

A = 100.00

n = 2.00

Interest Rate Annual Semiannual Quarterly Monthly Daily Continuous

5% 2460.00 2491.51 2507.67 2518.59 2518.84 2518.85

6% 2472.00 2510.18 2529.85 2543.20 2543.56 2543.57

7% 2484.00 2528.97 2552.26 2568.10 2568.60 2568.62

8% 2496.00 2547.88 2574.89 2593.32 2593.97 2594.00

9% 2508.00 2566.91 2597.75 2618.85 2619.69 2619.72

10% 2520.00 2586.07 2620.83 2644.69 2645.74 2645.78

11% 2532.00 2605.36 2644.15 2670.86 2672.14 2672.19

12% 2544.00 2624.77 2667.70 2697.35 2698.90 2698.95

13% 2556.00 2644.30 2691.48 2724.17 2726.01 2726.07

14% 2568.00 2663.97 2715.51 2751.32 2753.48 2753.56

15% 2580.00 2683.75 2739.77 2778.81 2781.33 2781.41