```
//concatenate - place end-to-end   strcpy() and strcat()
#include <stdio.h>
#include <string.h>
#define maxnumADDR    10
#define maxSTCITYlen  20
#define numADDRParts   3
#define FILENAME      "strcat_ex.txt"
int readAddr  ( char stateCityZip[][3][maxSTCITYlen] );
void printAddr( char stateCityZip[][3][maxSTCITYlen], int numADDR );

int main()
{
   char stateCityZip[maxnumADDR][3][maxSTCITYlen];
   int  numADDR;

   numADDR = readAddr( stateCityZip );
   if ( numADDR > 0 ) printAddr( stateCityZip, numADDR );

   return 0;
}
int readAddr  ( char stateCityZip[][3][maxSTCITYlen] )
{
   int  numADDR = 0;
   int  a = 0;      // count addresses
   int  p;          // count address parts
   char label[15];
   FILE *infile;
   infile = fopen( FILENAME, "r" );
   if ( infile == NULL ) printf( "Error opening data file\n" );
   else
   {
      fscanf( infile, "%s %d", label, &numADDR );

      for ( a=0; a<numADDR; a++ )
      {
         for (p=0; p<numADDRParts; p++)
            fscanf( infile, "%s", stateCityZip[a][p] );
      }
   }
   return numADDR;
}

void printAddr( char stateCityZip[][3][maxSTCITYlen], int numADDR )
{
   int a, p;
   char buildADDR[25];

   for ( a=0; a<numADDR; a++ )
   {
      strcpy( buildADDR, stateCityZip[a][1] );
      strcat( buildADDR, ", " );
      strcat( buildADDR, stateCityZip[a][0] );
      printf( "%-20s %-s\n", buildADDR, stateCityZip[a][2] );
   }
   printf( "\n" );
   for ( a=0; a<numADDR; a++ )
      printf("%s, %s \t%s\n",stateCityZip[a][1],stateCityZip[a][0], stateCityZip[a][2]);
}
```

strcat_ex.txt

```
#addresses 4
TN Gatlinburg 38907
AL Auburn 36830
AL Montgomery 36111
SC Summerville 29485
```

output

```
----jGRASP exec: H:\My Documents\comp 1200 - C\Hundley\Examples\a.exe

Gatlinburg, TN       38907
Auburn, AL           36830
Montgomery, AL       36111
Summerville, SC      29485

Gatlinburg, TN      38907
Auburn, AL          36830
Montgomery, AL      36111
Summerville, SC     29485

----jGRASP: operation complete.
```

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
arr[0][0]	T	N	\0																	
arr[0][1]	G	a	t	l	i	n	b	u	r	g	\0									
arr[0][2]	3	8	9	0	7	\0														
arr[1][0]	A	L	\0																	
arr[1][1]	A	u	b	u	r	n	\0													
arr[1][2]	3	6	8	3	0	\0														
arr[2][0]	A	L	\0																	
arr[2][1]	M	o	n	t	g	o	m	e	r	y	\0									
arr[2][2]	3	6	1	1	1	\0														
arr[3][0]	S	C	\0																	
arr[3][1]	S	u	m	m	e	r	v	i	l	l	e	\0								
arr[3][2]	2	9	4	8	5	\0														