

NAME Solutions

1. Show the output of the following program using the boxes

```

main()
{
  int    a[6][5], b[7], *p;

  a[1][1] = 1;
  a[5][4] = 2;
  *(a + 8) = 3;
  *(a + 3*5+1) = 4;
  p = a + 12;
  p[6] = 5;
  p = &(a[4][3]);
  *(p + 3) = 6;
  *a = 7;
  *p = 8;

  b[3] = 9;
  p = b + 2;
  p[3] = 10;
  *(b+2) = 11;
  *(p+2) = 12;
  p = &(b[1]);
  p[0] = 13;
}
    
```

a

	0	1	2	3	4
0	7				
1		1		3	
2			p		
3		4		5	
4				p 8	
5		6			2

b

	0	1	2	3	4	5	6
		p 13	p 11	9	12	10	

2. Write a complete program to read from 2 files of records and merge them and save the complete records to an output file. File 1 has the following fields: first name then last name then age then M or F for male or female and finally their profession. File 2 only has the ZIP code they live in. See example files below:

input file 1

Fernando Gonzalez 25 M Engineer
Sara Smith 37 F Realtor
John Brown 56 M Director

input file 2

32708
32816
32411

Read each record from file 1 and 2 and save each record with the ZIP code as the 6th field to the output file. The output file for this example will look like:

Output file

Fernando Gonzalez 25 M Engineer 32708
Sara Smith 37 F Realtor 32816
John Brown 56 M Director 32411

Finally close all files.

```
#include "stdio.h"
```

```
void main()
```

```
{
```

```
FILE *in1, *in2, *out;
```

```
char fname[80], lname[80], age[4], gender,  
profession[80], ZIP[10];
```

```
in1 = fopen("input1.dat", "r");
```

```
in2 = fopen("input2.dat", "r");
```

```
out = fopen("output.dat", "w");
```

```
if ( in1 == null || in2 == null || out == null )  
    {  
        printf( "error opening the files\n" );  
        return;  
    }
```

```
while ( !feof( in1 ) && !feof( in2 ) )  
    {
```

```
        fscanf( in1, "%s %s %s %c %s",  
                fname, lname, age, &gender,  
                profession );
```

```
        fscanf( in2, "%s", ZIP );
```

```
        fprintf( out, "%s %s %s %c %s %s\n",  
                fname, lname, age, gender, profession,  
                ZIP );
```

```
    }
```

```
fclose( in1 );  
fclose( in2 );  
fclose( out );
```

3. What is the contents of each variable in the following program? There is no output so I can only grade you from the history of each variable.

```

int w[2] = {0,1},
    x[2] = {10,11},
    y[2] = {20,21},
    z[2] = {30,31};

int bill(int w[2], int y[2], int *p)
{
    int    x[2] = {100,101};

    w[0] = w[0] + 5;
    x[0] = x[0] + 5;
    y[0] = y[0] + 5;
    z[0] = z[0] + 5;
    p[0] = p[0] + 5;
}

```

```

void main()
{
    int    x[2] = {1000,1001},
          z[2] = {4000,4001};

    x[1] = x[1] + 7;
    y[1] = y[1] + 7;
    z[1] = z[1] + 7;

    bill(z,x,w);
}

```

Variables

main

x		z	
0	1	0	1
1000	1001	4000	4001
1005	1008	4005	4008

file

w
0
1
5

x	y	z
0	1	0
1	1	1
10	20	30
11	21	31
	28	35

Bill(w, y, p)

w	y	p	x
0	1	0	1
100	100	100	101
105			