

```
1 // Draws a pyramid using iteration
2
3 #include <cs50.h>
4 #include <stdio.h>
5
6 void draw(int h);
7
8 int main(void)
9 {
10     // Get height of pyramid
11     int height = get_int("Height: ");
12
13     // Draw pyramid
14     draw(height);
15 }
16
17 void draw(int h)
18 {
19     // Draw pyramid of height h
20     for (int i = 1; i <= h; i++)
21     {
22         for (int j = 1; j <= i; j++)
23         {
24             printf("#");
25         }
26         printf("\n");
27     }
28 }
```

```
1 // Implements linear search for names
2
3 #include <cs50.h>
4 #include <stdio.h>
5 #include <string.h>
6
7 int main(void)
8 {
9     // An array of names
10    string names[] = {"EMMA", "RODRIGO", "BRIAN", "DAVID"};
11
12    // Search for EMMA
13    for (int i = 0; i < 4; i++)
14    {
15        if (strcmp(names[i], "EMMA") == 0)
16        {
17            printf("Found\n");
18            return 0;
19        }
20    }
21    printf("Not found\n");
22    return 1;
23 }
```

```
1 // Implements linear search for names using !
2
3 #include <cs50.h>
4 #include <stdio.h>
5 #include <string.h>
6
7 int main(void)
8 {
9     // An array of names
10    string names[] = {"EMMA", "RODRIGO", "BRIAN", "DAVID"};
11
12    // Search for EMMA
13    for (int i = 0; i < 4; i++)
14    {
15        if (!strcmp(names[i], "EMMA"))
16        {
17            printf("Found\n");
18            return 0;
19        }
20    }
21    printf("Not found\n");
22    return 1;
23 }
```

```
1 // Implements linear search for numbers
2
3 #include <cs50.h>
4 #include <stdio.h>
5
6 int main(void)
7 {
8     // An array of numbers
9     int numbers[] = {4, 8, 15, 16, 23, 42};
10
11     // Search for 50
12     for (int i = 0; i < 6; i++)
13     {
14         if (numbers[i] == 50)
15         {
16             printf("Found\n");
17             return 0;
18         }
19     }
20     printf("Not found\n");
21     return 1;
22 }
```

```
1 // Implements a phone book without structs
2
3 #include <cs50.h>
4 #include <stdio.h>
5 #include <string.h>
6
7 int main(void)
8 {
9     string names[] = {"EMMA", "RODRIGO", "BRIAN", "DAVID"};
10    string numbers[] = {"617-555-0100", "617-555-0101", "617-555-0102", "617-555-0103"};
11
12    for (int i = 0; i < 4; i++)
13    {
14        if (!strcmp(names[i], "EMMA"))
15        {
16            printf("Found %s\n", numbers[i]);
17            return 0;
18        }
19    }
20    printf("Not found\n");
21    return 1;
22 }
```

```
1 // Implements a phone book with structs
2
3 #include <cs50.h>
4 #include <stdio.h>
5 #include <string.h>
6
7 typedef struct
8 {
9     string name;
10    string number;
11 }
12 person;
13
14 int main(void)
15 {
16     person people[4];
17
18     people[0].name = "EMMA";
19     people[0].number = "617-555-0100";
20
21     people[1].name = "RODRIGO";
22     people[1].number = "617-555-0101";
23
24     people[2].name = "BRIAN";
25     people[2].number = "617-555-0102";
26
27     people[3].name = "DAVID";
28     people[3].number = "617-555-0103";
29
30     // Search for EMMA
31     for (int i = 0; i < 4; i++)
32     {
33         if (strcmp(people[i].name, "EMMA") == 0)
34         {
35             printf("Found %s\n", people[i].number);
36             return 0;
37         }
38     }
39     printf("Not found\n");
40     return 1;
41 }
```

```
1 // Draws a pyramid using recursion
2
3 #include <cs50.h>
4 #include <stdio.h>
5
6 void draw(int h);
7
8 int main(void)
9 {
10     // Get height of pyramid
11     int height = get_int("Height: ");
12
13     // Draw pyramid
14     draw(height);
15 }
16
17 void draw(int h)
18 {
19     // If nothing to draw
20     if (h == 0)
21     {
22         return;
23     }
24
25     // Draw pyramid of height h - 1
26     draw(h - 1);
27
28     // Draw one more row of width h
29     for (int i = 0; i < h; i++)
30     {
31         printf("#");
32     }
33     printf("\n");
34 }
```