

```
1  // Logical operators
2
3  #include <cs50.h>
4  #include <stdio.h>
5
6  int main(void)
7  {
8      // Prompt user to agree
9      char c = get_char("Do you agree?\n");
10
11     // Check whether agreed
12     if (c == 'Y' || c == 'y')
13     {
14         printf("Agreed.\n");
15     }
16     else if (c == 'N' || c == 'n')
17     {
18         printf("Not agreed.\n");
19     }
20 }
```

```
1  // Conditions and relational operators
2
3  #include <cs50.h>
4  #include <stdio.h>
5
6  int main(void)
7  {
8      // Prompt user for x
9      int x = get_int("x: ");
10
11     // Prompt user for y
12     int y = get_int("y: ");
13
14     // Compare x and y
15     if (x < y)
16     {
17         printf("x is less than y\n");
18     }
19     else if (x > y)
20     {
21         printf("x is greater than y\n");
22     }
23     else
24     {
25         printf("x is equal to y\n");
26     }
27 }
```

```
1  // Opportunity for better design
2
3  #include <stdio.h>
4
5  int main(void)
6  {
7      printf("cough\n");
8      printf("cough\n");
9      printf("cough\n");
10 }
```

```
1  // Better design
2
3  #include <stdio.h>
4
5  int main(void)
6  {
7      for (int i = 0; i < 3; i++)
8      {
9          printf("cough\n");
10     }
11 }
```

```
1  // Abstraction
2
3  #include <stdio.h>
4
5  void cough(void);
6
7  int main(void)
8  {
9      for (int i = 0; i < 3; i++)
10     {
11         cough();
12     }
13 }
14
15 // Cough once
16 void cough(void)
17 {
18     printf("cough\n");
19 }
```

```
1  // Abstraction with parameterization
2
3  #include <stdio.h>
4
5  void cough(int n);
6
7  int main(void)
8  {
9      cough(3);
10 }
11
12 // Cough some number of times
13 void cough(int n)
14 {
15     for (int i = 0; i < n; i++)
16     {
17         printf("cough\n");
18     }
19 }
```

```
1  // Floating-point arithmetic with double
2
3  #include <cs50.h>
4  #include <stdio.h>
5
6  int main(void)
7  {
8      // Prompt user for x
9      double x = get_double("x: ");
10
11     // Prompt user for y
12     double y = get_double("y: ");
13
14     // Perform division
15     printf("x / y = %.50f\n", x / y);
16 }
```

```
1 // get_float and printf with %f
2
3 #include <cs50.h>
4 #include <stdio.h>
5
6 int main(void)
7 {
8     int price = get_float("What's the price?\n$");
9     printf("Your total is $%.2f.\n", price * 1.0625);
10 }
```



```
1  // Floating-point arithmetic with float
2
3  #include <cs50.h>
4  #include <stdio.h>
5
6  int main(void)
7  {
8      // Prompt user for x
9      float x = get_float("x: ");
10
11     // Prompt user for y
12     float y = get_float("y: ");
13
14     // Perform division
15     printf("x / y = %.50f\n", x / y);
16 }
```

```
1  // A program that says hello to the world
2
3  #include <stdio.h>
4
5  int main(void)
6  {
7      printf("hello, world\n");
8  }
```

```
1  // get_int and printf with %i
2
3  #include <cs50.h>
4  #include <stdio.h>
5
6  int main(void)
7  {
8      int age = get_int("What's your age?\n");
9      printf("You are at least %i days old.\n", age * 365);
10 }
```

```
1  // Prints a row of 4 question marks
2
3  #include <stdio.h>
4
5  int main(void)
6  {
7      printf("????\n");
8  }
```

```
1  // Prints a row of 4 question marks with a loop
2
3  #include <stdio.h>
4
5  int main(void)
6  {
7      for (int i = 0; i < 4; i++)
8      {
9          printf("?");
10     }
11     printf("\n");
12 }
```

```
1  // Prints a row of n question marks with a loop
2
3  #include <cs50.h>
4  #include <stdio.h>
5
6  int main(void)
7  {
8      int n;
9      do
10     {
11         n = get_int("Width: ");
12     }
13     while (n < 1);
14     for (int i = 0; i < n; i++)
15     {
16         printf("?");
17     }
18     printf("\n");
19 }
```

```
1 // Prints a column of 3 bricks
2
3 #include <stdio.h>
4
5 int main(void)
6 {
7     printf("#\n");
8     printf("#\n");
9     printf("#\n");
10 }
```

```
1  // Prints a column of 3 bricks with a loop
2
3  #include <stdio.h>
4
5  int main(void)
6  {
7      for (int i = 0; i < 3; i++)
8      {
9          printf("#\n");
10     }
11 }
```



```
1  // Prints a column of n bricks with a loop
2
3  #include <cs50.h>
4  #include <stdio.h>
5
6  int main(void)
7  {
8      int n;
9      do
10     {
11         n = get_int("Height: ");
12     }
13     while (n < 1);
14     for (int i = 0; i < n; i++)
15     {
16         printf("#\n");
17     }
18 }
```

```
1 // Prints 3-by-3 grid of bricks
2
3 #include <stdio.h>
4
5 int main(void)
6 {
7     printf("###\n");
8     printf("###\n");
9     printf("###\n");
10 }
```

```
1  // Prints a 3-by-3 grid of bricks with a loop
2
3  #include <stdio.h>
4
5  int main(void)
6  {
7      for (int i = 0; i < 3; i++)
8      {
9          printf("###\n");
10     }
11 }
```

```
1  // Prints an n-by-n grid of bricks with a loop
2
3  #include <cs50.h>
4  #include <stdio.h>
5
6  int main(void)
7  {
8      int n;
9      do
10     {
11         n = get_int("Size: ");
12     }
13     while (n < 1);
14     for (int i = 0; i < n; i++)
15     {
16         for (int j = 0; j < n; j++)
17         {
18             printf("#");
19         }
20         printf("\n");
21     }
22 }
```

```
1 // Integer overflow
2
3 #include <stdio.h>
4 #include <unistd.h>
5
6 int main(void)
7 {
8     // Iteratively double i
9     for (int i = 1; ; i *= 2)
10    {
11        printf("%i\n", i);
12        sleep(1);
13    }
14 }
```

```
1 // Calculates a remainder
2
3 #include <cs50.h>
4 #include <stdio.h>
5
6 int main(void)
7 {
8     // Prompt user for integer
9     int n = get_int("n: ");
10
11     // Check parity of integer
12     if (n % 2 == 0)
13     {
14         printf("even\n");
15     }
16     else
17     {
18         printf("odd\n");
19     }
20 }
```

```
1  // Abstraction and scope
2
3  #include <cs50.h>
4  #include <stdio.h>
5
6  int get_positive_int(void);
7
8  int main(void)
9  {
10     int i = get_positive_int();
11     printf("%i\n", i);
12 }
13
14 // Prompt user for positive integer
15 int get_positive_int(void)
16 {
17     int n;
18     do
19     {
20         n = get_int("Positive Integer: ");
21     }
22     while (n < 1);
23     return n;
24 }
```

```
1  // get_string and printf with %s
2
3  #include <cs50.h>
4  #include <stdio.h>
5
6  int main(void)
7  {
8      string s = get_string("What's your name?\n");
9      printf("hello, %s\n", s);
10 }
```