Exercise 3
Functions I

Learning Outcomes:

- Use looping constructs and conditional statements to implement functions
- Implement functions to simplify Goldbach's and Waring's prime number conjecture

Problem:

Goldbach's conjecture (named after German mathematician Christian Goldbach on June 7, 1742) is a problem which states that any even positive integer greater than four (4) can be expressed as the sum of two odd prime integers. Take for example

```
10 = 5 + 5, 3 + 7
```

On the other hand, Waring's prime number conjecture (named after English mathematician Edward Waring) is a conjecture which states that any odd positive integer greater than five (5) can be expressed as the sum of three prime integers [2]. Take for example

```
7 = 3 + 2 + 2
```

Your task is to create a program that would print Waring's trio if the input integer is odd, or print Goldbach's pair if otherwise.

Function to implement:

```
 /* Determines if integer x is a prime number, return 1 if prime 0 if
otherwise*/
bool isPrime(int x);

/* Determines if integer x is an even greater than 4, return 1 if even 0 if
otherwise.*/
bool isEven(int x);

/* Prints the Goldbach's pair using the functions isPrime and isEven*/
void printGoldbachsPair (int x);

/* Prints the Waring's trio (using the functions isPrime and isEven*/
void printWaringTrio (int x);
```