Exercises

Enhance your programming by practicing loops and conditionals.

We'll cover the following

- Question 1
- Question 2
- Question 3

Question 1

FizzBuzz : Write a program that prints the numbers from 1 to 10. For multiples of three print “Fizz” instead of the number and for the multiples of five print “Buzz”. For numbers which are multiples of both three and five print “FizzBuzz”.

Don’t look at the solution tab until and unless you give it a try yourself.

Your Code | Solution

```
#include <stdio.h>

int main(int argc, char **argv)
{
  int i;
  for (i=1; i<=100; i++)
 {
    //if the number divides, remainder will be 0
    // we use the ! to change it to 1 so that the overall condition
    //becomes TRUE
      if (!(i % 3) && !(i % 5)) //checking if it divides by 3 AND 5 by taking % (modulus)
        printf("%d FizzBuzz", i);
      else if (!(i % 3)) //checking if it divides by just 3
        printf("%d Fizz", i);
      else if (!(i % 5)) //checking if it divides by just 5
        printf("%d Buzz", i);
      else
        printf("%d", i);
      printf("\n");
 }
  return 0;
}
```

Question 2

Write a program to estimate the square root of 612 using Newton's method, using 5 iterations.

Give this challenge a try yourself before going to the solution.

Your Code | Solution

```
#include <stdio.h>

int main(int argc, char **argv)
{
  double x2 = 612;
  double x0 = 10;
  double xi;
  int i;
  for (i=0; i<5; i++) {
    xi = x0 - ( ((x0*x0) - x2) / (2*x0) );
    printf("x%d = %.12f, x%d = %.12f\n", i, x0, i+1, xi);
    x0 = xi;
  }
  return 0;
}
```

Question 3

Write a program that displays a triangle with height n and width $2n-1$. The output for $n = 6$ would be:

```
     *
    ***
   *****
  *******
 *********
***********
```

Your Code | Solution

```
#include <stdio.h>

int main(int argc, char **argv)
{
  int n=6;
  int i, j;
```

```
  for (i=0; i<=n; i++)
  {
    for (j=0; j<(n-i); j++)
    {
      printf(" ");
    }
    for(j=(n-i); j<(n-i)+((2*i)-1); j++)
    {
      printf("*");
    }
    printf("\n");
  }
  return 0;
}
```