# 4330 Assignment 6 [1]

Write your code for the following problems in a single file named:

$$\boxed{\texttt{hw6-}lastname\texttt{.py}}$$

Please: name your file in exactly this way; lowercase 'hw', a dash (not an underscore), and **NO SPACES** in the filename!

This assignment is for more practice with lists, loops, and functions. You should NOT use any external libraries for this assignment, including the 'math' library.

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**(1) (10 points)** Write a Python function `f` which takes a single argument `x`, and computes and returns $x^2 + x + 41$. The function should **NOT** print anything!

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**(2) (10 points)** Write a function called `build_list` which takes a single integer argument `n`, and computes and returns a list containing `f(1)`, `f(2)`,..., `f(n)`. The function should **NOT** print anything!

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**(3) (10 points)** Write a Python function called `isprime` which takes a single integer argument `n`, and returns `True` if `n` is prime and `False` otherwise. Note: $n$ is not prime if either $n \leq 1$ or if there exists an integer $d \in [2, \sqrt{n}]$ for which $n$ is divisible by $d$. The function should **NOT** print anything!

Then add the following snippet of code to the bottom of your file:

```python
mylist = build_list(50)
for m in mylist:
    if isprime(m):
        print("{0} is prime.".format(m))
    else:
        print("{0} is NOT prime.".format(m))
```

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