USER DEFINED FRUITFUL FUNCTIONS

COMP130 – INTRODUCTION TO COMPUTING

DICKINSON COLLEGE

VOID (FRUITLESS?) VS FRUITFUL FUNCTIONS

- All functions ***encapsulate a useful unit of work***:
  - ***Void (fruitless) functions*** do something useful.
    - `print('John Von Neuman')`
    - `bob.forward(100)`
    - `sue.left(90)`
    - `print_horiz_bar(9)`
    - `print_I(9)`
  - ***Fruitful functions*** compute a useful value.
    - `name_length = len("Ada Lovelace")`
    - `month_num = random.randint(1,12)`
    - `adj_len = hyp_len * math.cos(math.radians(angle_deg))`
    - `year = int(input("Enter the year"))`

DEFINING A FRUITFUL FUNCTION

- Fruitful functions contain a ***return statement*** that indicates the ***return value*** of the function.

```
def cylinder_volume(radius, height):
    area = math.pi * radius**2
    volume = area * height
    return volume
```

Return Statement

Return Value

```
def cylinder_volume(radius, height):
    return math.pi * radius**2 * height
```

BOOLEAN FUNCTIONS

- A ***Boolean function*** is a fruitful function that returns either `True` or `False`

```
def is_weekend(day_name):
    if (day_name == 'Saturday' or day_name == 'Sunday'):
        return True
    else:
        return False
```

Return Statement

Boolean Return Value

```
def is_weekend(day_name):
    return day_name == 'Saturday' or day_name == 'Sunday')
```

DEAD CODE

- Function execution stops as soon as a `return` statement is executed.
  - This can result in ***dead code,*** or statements that can never be executed.

```
def is_weekend(day_name):
    if (day_name == 'Saturday' or day_name == 'Sunday'):
        return True
        print("Dead code!")
    else:
        print("Not dead code!")
        return False
        print("Dead code!")

    print("Dead code!")
```