

Lecture 10

Topics to be covered:

Chapter 7:

- Section 7.7 String formatting
- Section 7.9 Additional practice: Health data

7.7 String formatting

Program output commonly includes the value of variables as a part of the text.

Example: for the following code

```
num = 18  
tum = 9.8  
print("I have a number", num, "and a number", tum)
```

7.7 String formatting

Program output commonly includes the value of variables as a part of the text.

Example: for the following code

```
num = 18  
tum = 9.8  
print("I have a number", num, "and a number", tum)
```

will produce:

I have a number 18 and a number 9.8

Note that we have to keep track of those double quotes (") and commas in the print statement.

7.7 String formatting

Compare the following two `print` statements:

```
num = 18, tum = 9.8
```

```
print("I have a number", num, "and a number", tum)
```

```
print("I have a number %d and a number %f" %  
(num, tum))
```

The first one produced:

```
I have a number 18 and a number 9.8
```

The second one produced:

```
I have a number 18 and a number 9.800000
```

7.7 String formatting

A *string formatting expression* allows a programmer to create a string with placeholders that are replaced by the value of variables.

Such a placeholder is called a *conversion specifier*.

Different conversion specifiers are used to perform a conversion of the given variable value to a different type when creating the string.

7.7 String formatting

A *string formatting expression* allows a programmer to create a string with *placeholders* that are replaced by the *value of variables*.

Such a placeholder is called a *conversion specifier*.

Different conversion specifiers are used to perform a conversion of the given variable value to a different type when creating the string.

Example:

```
num = 5.5
```

```
print("The integer part is %d" % num)
```

will yield:

The integer part is 5

7.7 String formatting

Example: Consider the following code fragment

```
price = 119 # in dollars
discount = 30 # in percent %
print("A $%d jacket at %d%% discount is now
priced at %f" % (price, discount, price*0.7))
```

Produces the output:

```
A $119 jacket at 30% discount is now priced at
83.300000
```

7.7 String formatting

Example: Consider the following code fragment

```
price = 119 # in dollars
discount = 30 # in percent %
print("A $%d jacket at %d%% discount is now
priced at %f" % (price, discount, price*0.7))
```

Produces the output:

```
A $119 jacket at 30% discount is now priced at
83.300000
```


7.7 String formatting

Example: Consider the following code fragment

```
name1 = "Chris"  
name2 = "John"  
print("%s and %s are heading to the movies  
tonight" % (name1,name2))
```

Produces the output:

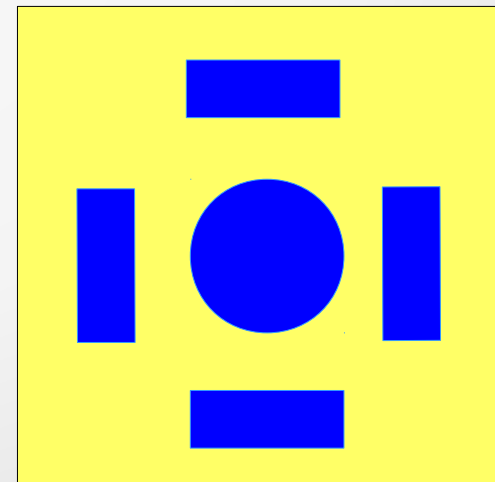
```
Chris and John are heading to the movies  
tonight
```

In-class activity/group project: flower garden

Programs are good at performing routine mathematical calculations.

By way of illustration, you will write a program to calculate the materials needed for an ornamental garden according to the design below.

In this design, the blue areas represent flowerbeds and the yellow areas are filled with stone, mulch, or other fill material. The garden is a perfect square.



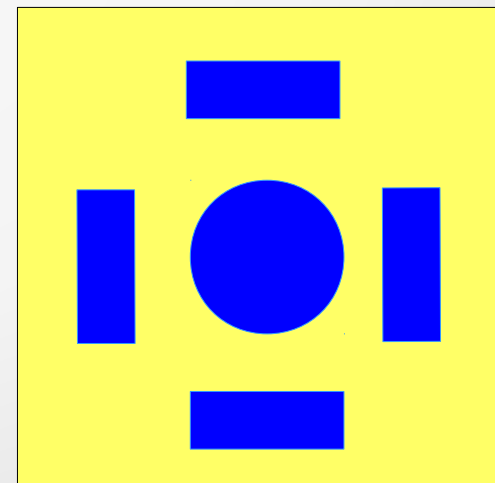
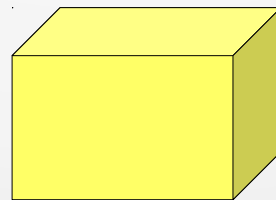
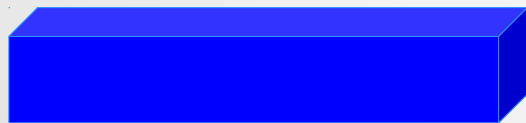
to be sent to me at natna20@gmail.com by the end of the class

In-class activity/group project: flower garden

Project Description / Specification

Your program should prompt the user for the following information:

1. The side length (in feet) of the finished garden.
2. The recommended spacing (in feet) between plants.
3. The depth (in feet) of the flowerbeds.
4. The depth (in feet) of the filled areas



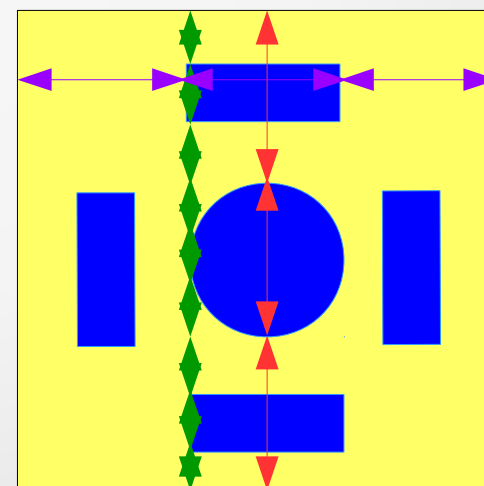
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In-class activity/group project: flower garden

Next estimate the number of plants and the amount of fill and flowerbed soil needed.

Finally, it should report the following quantities needed for the garden:

1. Number of plants for each type of flowerbed (rectangle and circle) and total number of plants for the garden.
2. Cubic yards of soil for each type of flowerbed (rectangle and circle) and the total cubic yards of soil for the garden
3. Total cubic yards of fill material for the garden

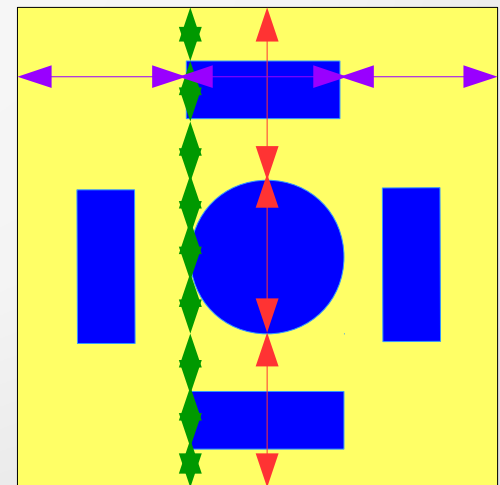


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In-class activity/group project: flower garden

Here is an outline of your program:

1. Prompt for input (use input)
2. Convert the input strings to numbers (use float)
3. Do some mathematical calculations using the input numbers to get results.
4. Print the results (use print)



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In-class activity/group project: flower garden

A sample of interactions:

We are planning an ornamental garden.

Enter side length of garden (in feet):10

Enter the spacing between plants:0.5

Enter the depth of the flowerbeds:0.8

Enter the depth of the filled area:0.8

Requirements:

Plants for each rectangle garden: 11

Plants for the circle garden: 34

Total plants for garden: 78

Soil for each rectangle garden: 4.444444 cubic feet

Soil for the circle garden: 13.955556 cubic feet

Total soil for the garden: 31.733333 cubic feet

Total fill for the garden: 48.266667 cubic feet

