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CPT 232

Program 4

10/16/11

**Data Dictionary**

**Analysis**

Outputs: pond diameter, dome diameter, pond area, total bid, dome area minus pond, number of seats, gallons of water for pond, cost of seats

**Name** **Type** **Description**

customer\_name string name of customer

pond\_diameter double diameter of pond

pond\_radius double radius of the pond

dome\_diameter double 3 times the pond diameter

dome\_radius double radius of the dome

pond\_area double PI \* r ^ 2

total\_dome\_area double 3 times the pond area

dome\_area\_minus\_pond double total\_dome\_area – pond\_area

dome\_area\_half double half the area of the dome minus the pond

PI const double using for most accuracy, 3.141592653589793

volume\_gallons double volume of water in gallons

volume\_feet double volume of water in cubic feet

seat\_type int seat type

seat\_size double size of seats

pond\_concrete\_total double total cost of concrete under pond

contractor\_quote int contractor quotes

contractor\_bid double contractor bid choice for concrete

num\_seats int Number of seats

install\_cost double Total seat installation cost

seat\_contractor int Choice of seat contractor

seat\_bid double contractor bid choice for seat

**Calculate 12 values**

volume\_feet = volume\_gallons \* 0.13368

pond\_radius = sqrt(volume\_feet / PI \* 11.0)

pond\_diameter = 2.0 \* pond\_radius

dome\_diameter = pond\_diameter \* 3.0

dome\_radius = dome\_diameter / 2.0

pond\_area = pow(pond\_radius, 2) \* PI

total\_dome\_area = pow(dome\_radius, 2) \* PI

dome\_area\_minus\_pond = total\_dome\_area – pond\_area

dome\_area\_half = dome\_area\_minus\_pond / 2.0

num\_seats = dome\_area\_half / seat\_size

pond\_concrete\_total = contractor\_bid \* pond\_area

install\_cost = seat\_bid \* num\_seats

**Flowchart**

Start

Enter customer\_name, volume\_gallons

volume\_feet = volume\_gallons \* 0.13368

pond\_radius = sqrt(volume\_feet / PI \* 11.0)

pond\_diameter = 2.0 \* pond\_radius

dome\_diameter = pond\_diameter \* 3.0

dome\_radius = dome\_diameter / 2.0

total\_dome\_area = pow(dome\_radius, 2) \* PI

pond\_area = pow(pond\_radius, 2) \* PI

dome\_area\_minus\_pond = total\_dome\_area – pond\_area

dome\_area\_half = dome\_area\_minus\_pond / 2.0

Enter seat\_type

if( seat\_type == 1)

seat\_size = 4.8

seat\_size = 5.5

Display “Wooden chairs”

Display “Plastic chairs”

num\_seats = dome\_area\_half / seat\_size

Enter contractor\_quote

if( contractor\_quote == 1)

contractor\_bid = 37.75

if( contractor\_quote == 2)

contractor\_bid = 38.95

if( contractor\_quote == 3)

if( contractor\_quote == 4)

contractor\_bid = 44.99

contractor\_bid = 22.85

contractor\_bid = 44.99

pond\_concrete\_total = contractor\_bid \* pond\_area

Enter seat\_contractor

if(seat\_contractor == 1)

if(seat\_contractor == 2)

seat\_bid = 39.95

seat\_bid = 39.95

seat\_bid = 39.95

install\_cost = seat\_bid \* num\_seats

Display customer\_name, pond\_diameter, dome\_diameter, pond\_area, pond\_concrete\_total, dome\_area\_minus\_pond, num\_seats, volume\_gallons, install\_cost

Stop