Lab 5P: Repetition Structures_ 5P_RS

GADDIS Text Pages 199 - 201

Assigned Projects = 3 (75 Pts)

Using the IDLE editor (FILE/New Window)……

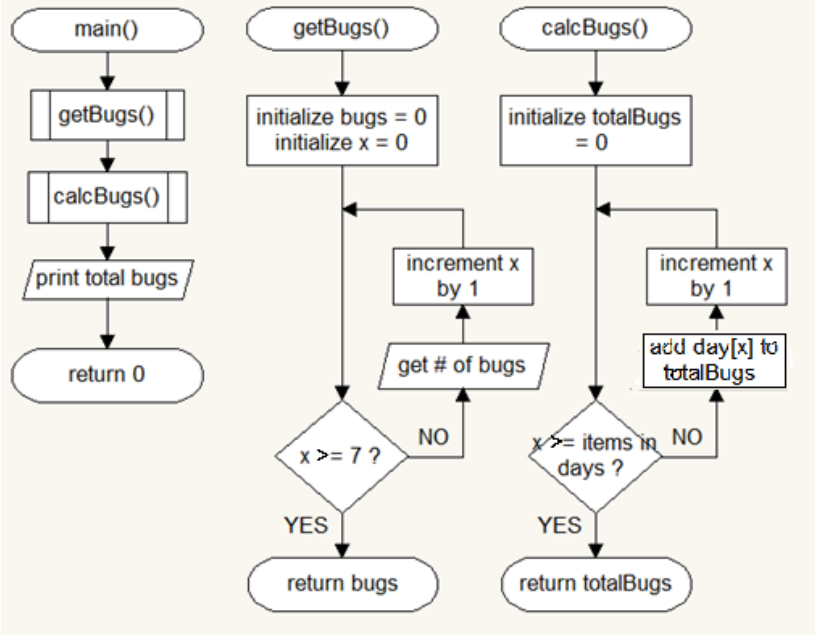
Name: _____Jeff Couch_____

For EACH Assigned Project you complete:

Take one Screenshot of both the EDIT window disiplaying your program and the SHELL window displaying your program results and paste as directed.

Project 1: Bug Collector (20 Pts)

Input; Bugs Collected = 40,53,66,45,47,57,44



```
#1 Bug Collector
def getBugs():
    bugs = []

    #gets number of bugs collected each day for a week
    for x in range(0, 7):
        bugs.insert(x, int(input("Number of bugs collected on day %d: "
                                 % int(x+1))))
    return bugs #returns a list containing number of bugs collected per day

def calcBugs(bugs):
    #calculates total number of bugs collected
    totalBugs = 0
    for x in bugs:
        totalBugs += x
    return totalBugs

def main():
    print("Total bugs collected: %d" % calcBugs(getBugs()))

main()
```

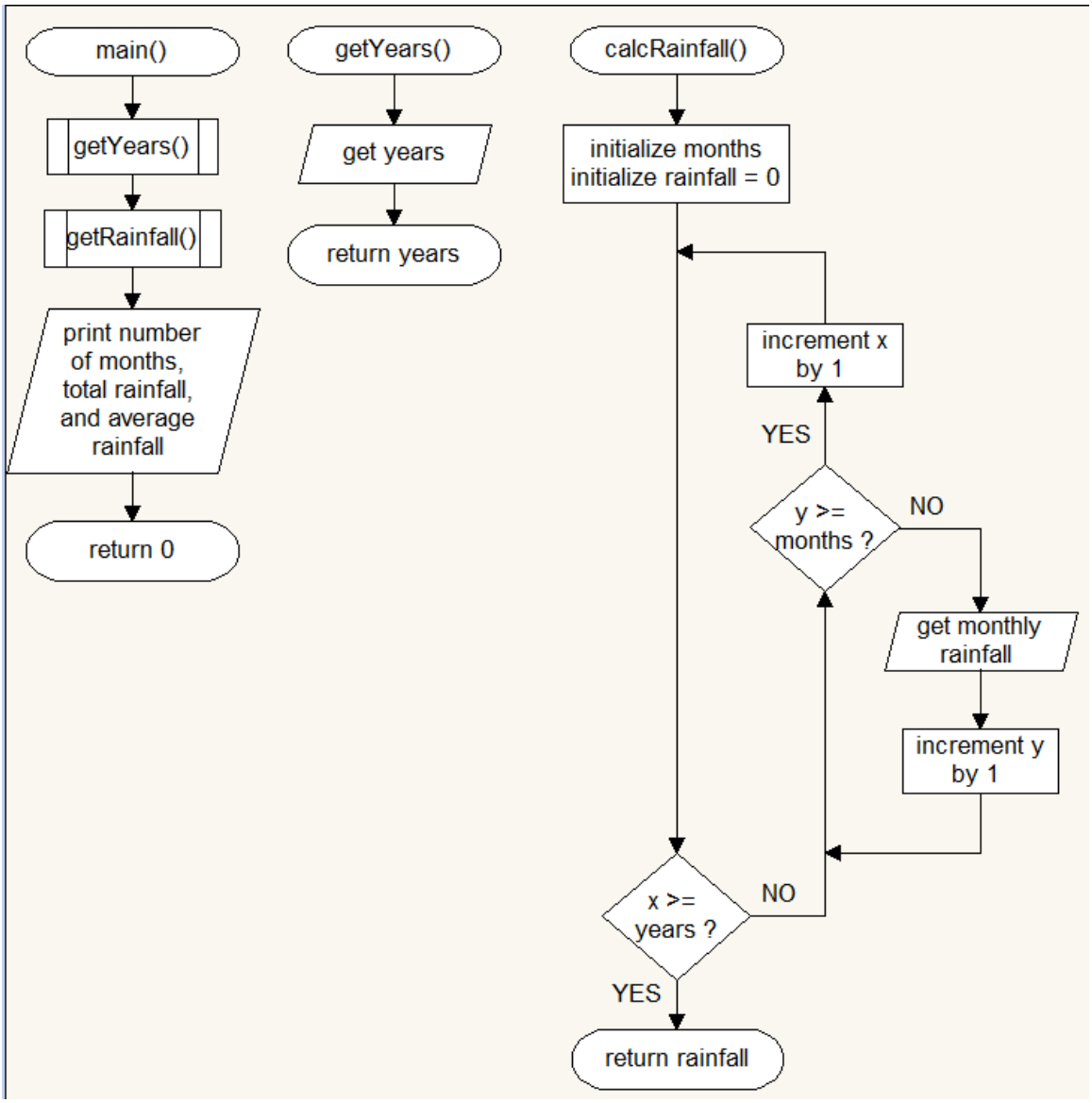
```
>>>
Number of bugs collected on day 1: 40
Number of bugs collected on day 2: 53
Number of bugs collected on day 3: 66
Number of bugs collected on day 4: 45
Number of bugs collected on day 5: 47
Number of bugs collected on day 6: 57
Number of bugs collected on day 7: 44
Total bugs collected: 352
>>>
```

Project 5: Average Rainfall (30 Pts)

Input: Number of years = 2

For year 1.. Inches = 8.3, 5.2, 7.5, 9.1, 12.3, 7.4, 6.6, 7.9, 10.8, 4.6, 9.4, 8.2

For year 2.. Inches = 9.1, 6.2, 5.8, 9.5, 12.5, 10.8, 4.8, 8,9, 11.7, 10.7, 13.3, 9.8


main()
getYears()
getRainfall()
print number of months, total rainfall, and average rainfall
return 0
getYears()
get years
return years
calcRainfall()
initialize months
initialize rainfall = 0
increment x by 1
YES
y >= months ?
NO
get monthly rainfall
increment y by 1
x >= years ?
NO
YES
return rainfall

```
#5 Rainfall

#gets number of years
def getYears():
    years = int(input("Input number of years: "))
    return years

#gets monthly rainfall for specified number of years
def getRainfall(years):
    months = ['January', 'February', 'March', 'April', 'May', 'June', 'July',
              'August', 'September', 'October', 'November', 'December']
    rainfall = 0
    for x in range(0, years):   #iterate for # of years
        for y in months:    #iterate for number of months
            rainfall += float(input("Year %d: %s rainfall in inches: " %
                                    ((x+1), y)))
    return rainfall

def main():
    years = getYears()
    rainfall = getRainfall(years)

    #prints total and average rainfall
    print("\nNumber of Months\tTotal Rainfall\t\tAverage Rainfall Per Month")
    print("-----------------------------------"\
          "----------------------------------------")
    print("%d\t\t\t%.1f in.\t\t%.1f in." %
          ((years*12), rainfall, (rainfall/(years*12))))

main()
```

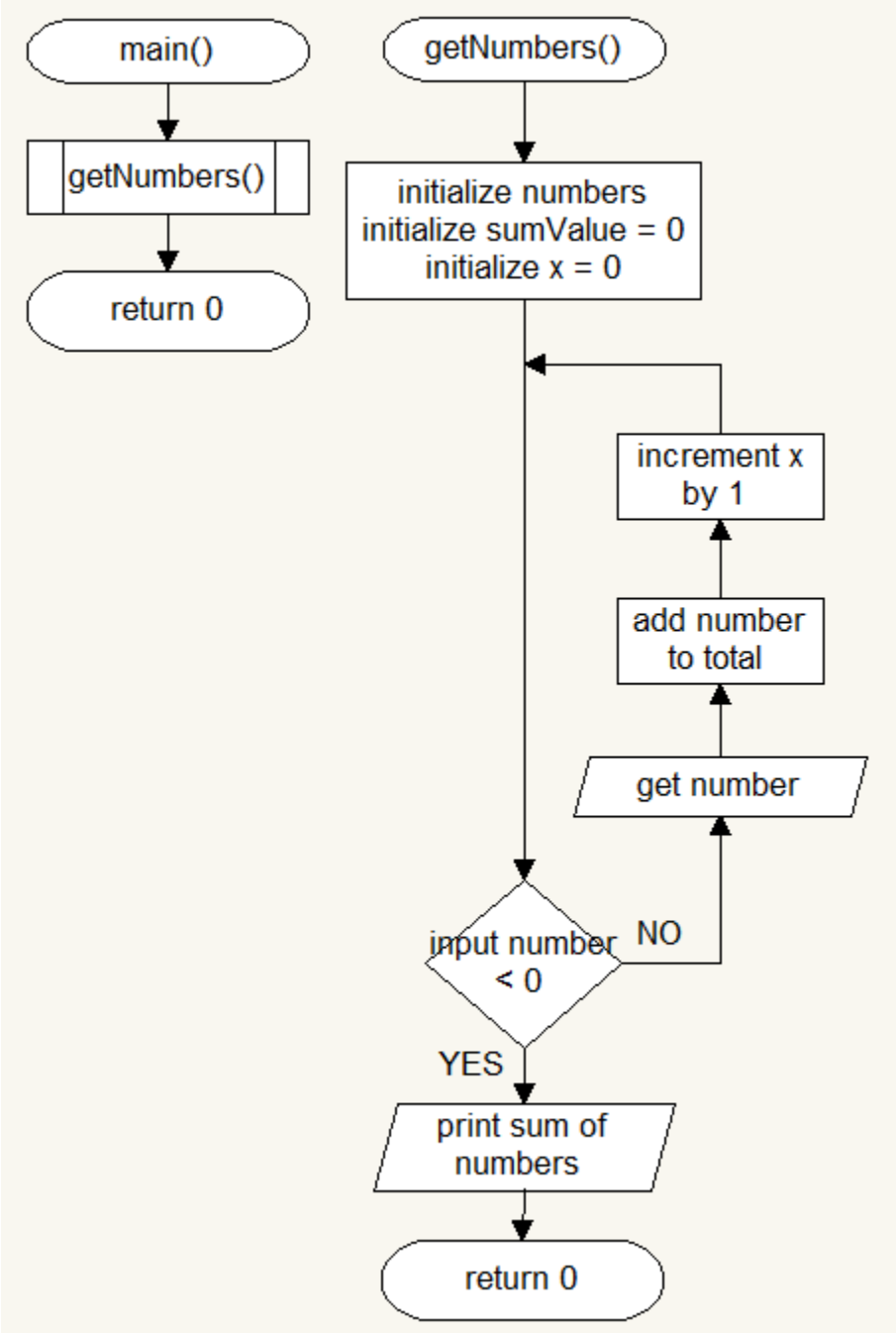
Ln: 101

```
>>>
Input number of years: 2
Year 1: January rainfall in inches: 8.3
Year 1: February rainfall in inches: 5.2
Year 1: March rainfall in inches: 7.5
Year 1: April rainfall in inches: 9.1
Year 1: May rainfall in inches: 12.3
Year 1: June rainfall in inches: 7.4
Year 1: July rainfall in inches: 6.6
Year 1: August rainfall in inches: 7.9
Year 1: September rainfall in inches: 10.8
Year 1: October rainfall in inches: 4.6
Year 1: November rainfall in inches: 9.4
Year 1: December rainfall in inches: 8.2
Year 2: January rainfall in inches: 9.1
Year 2: February rainfall in inches: 6.2
Year 2: March rainfall in inches: 5.8
Year 2: April rainfall in inches: 9.5
Year 2: May rainfall in inches: 12.5
Year 2: June rainfall in inches: 10.8
Year 2: July rainfall in inches: 4.8
Year 2: August rainfall in inches: 8.9
Year 2: September rainfall in inches: 11.7
Year 2: October rainfall in inches: 10.7
Year 2: November rainfall in inches: 13.3
Year 2: December rainfall in inches: 9.8

Number of Months        Total Rainfall          Average Rainfall Per Month
-------------------------------------------------------------------------
24                      210.4 in.               8.8 in.
>>> ================================ RESTART ================================
```

Project 8: Sum of Numbers (25 Pts)

Input: Positive Numbers = 5,8,12,14,15,17,19,22,25,23,29,31,51,64,77,89,-1



```
#8 Sum of Numbers
def getNumbers():
    numbers = []
    sumValue = 0
    x = 0

    #gets integers from user
    while True:
        numbers.insert(x, int(input("Enter number %d: " % int(x+1))))
        sumValue += numbers[x]  #adds each number to sum
        if numbers[x] < 0:
            break   #breaks from loop if negative integer is entered
        x += 1
    print("The sum is: %d" % sumValue)

def main():
    getNumbers()

main()
```

```
>>>
Enter number 1: 5
Enter number 2: 8
Enter number 3: 12
Enter number 4: 14
Enter number 5: 15
Enter number 6: 17
Enter number 7: 19
Enter number 8: 22
Enter number 9: 25
Enter number 10: 23
Enter number 11: 29
Enter number 12: 31
Enter number 13: 51
Enter number 14: 64
Enter number 15: 77
Enter number 16: 89
Enter number 17: -1
The sum is: 500
>>>
```