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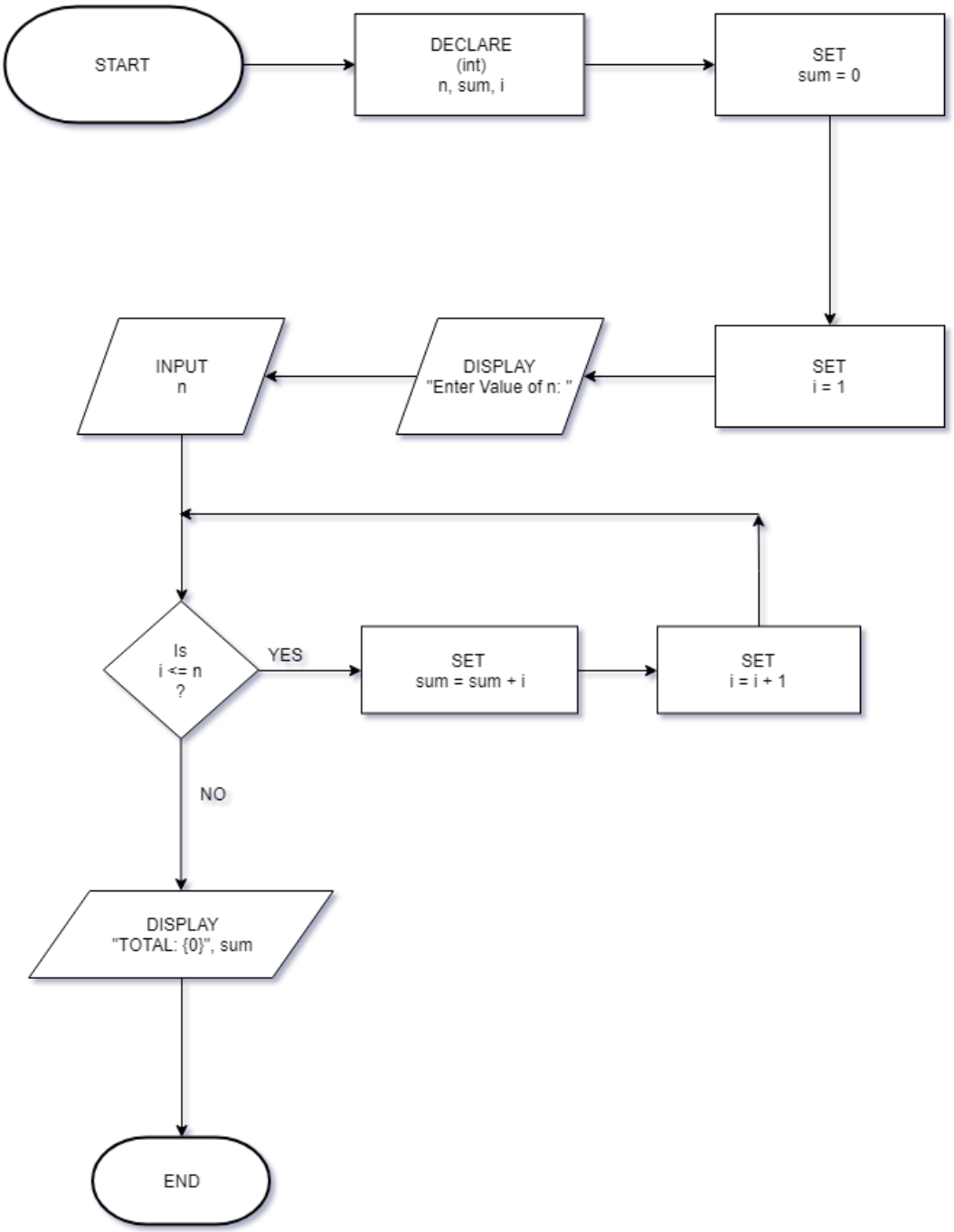
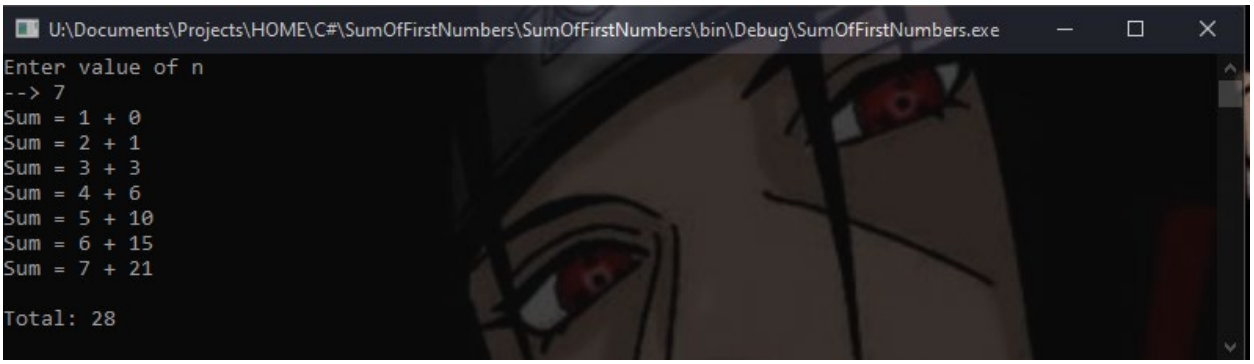
Labsheet 3

Question 1

1.

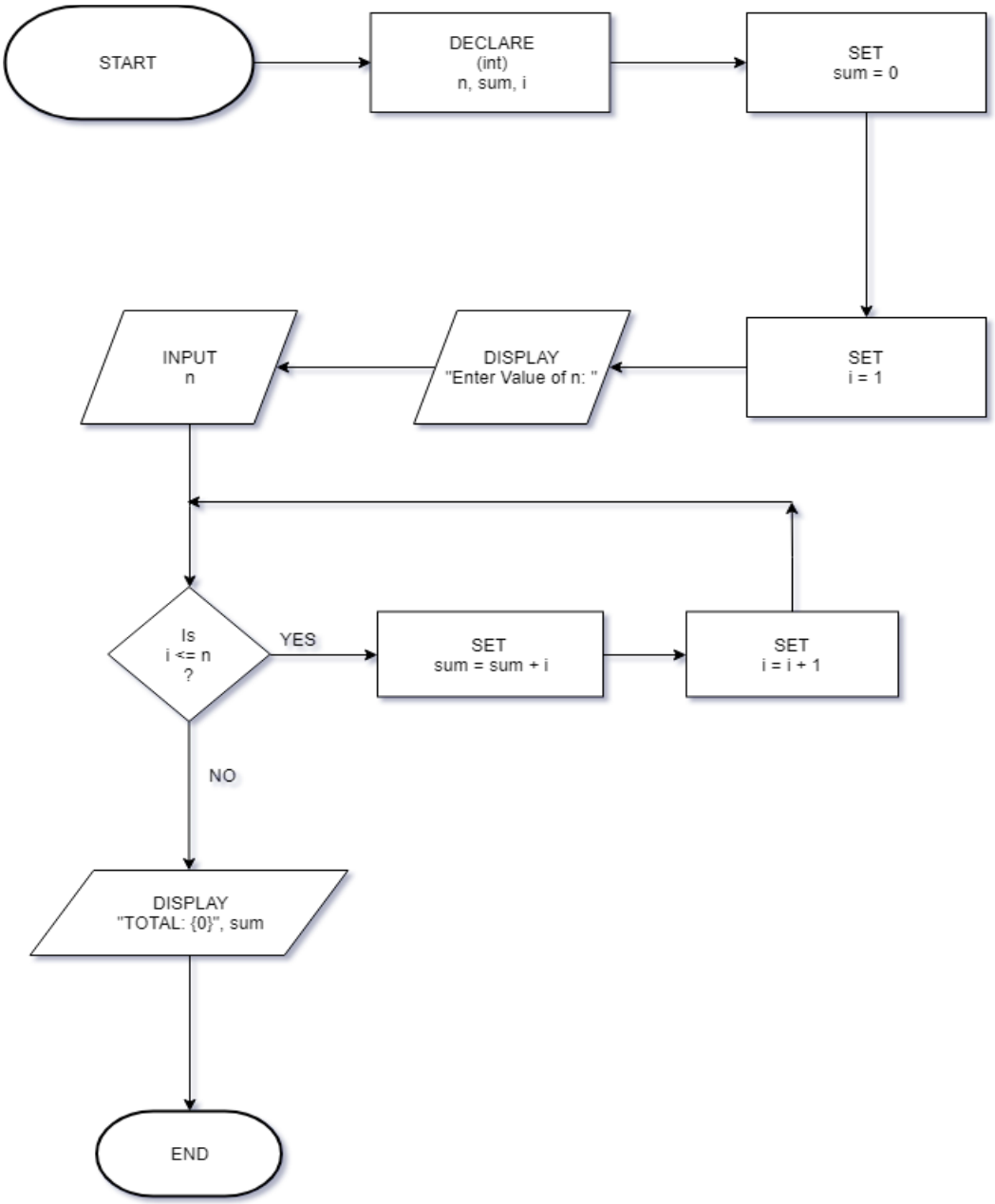
```
DECLARE (int) n, sum, i
SET sum = 0
SET I = 0
DISPLAY "Enter Value of n: "
INPUT n
WHILE (i <=n)
        SET sum = sum + i
        i++
END WHILE
DISPLAY "TOTAL: {0}", sum
```


START
DECLARE
(int)
n, sum, i
SET
sum = 0
INPUT
n
DISPLAY
"Enter Value of n: "
SET
i = 1
Is
i <= n
?
YES
SET
sum = sum + i
SET
i = i + 1
NO
DISPLAY
"TOTAL: {0}", sum
END


U:\Documents\Projects\HOME\C#\SumOfFirstNumbers\SumOfFirstNumbers\bin\Debug\SumOfFirstNumbers.exe
Enter value of n
--> 7
Sum = 1 + 0
Sum = 2 + 1
Sum = 3 + 3
Sum = 4 + 6
Sum = 5 + 10
Sum = 6 + 15
Sum = 7 + 21
Total: 28

2.

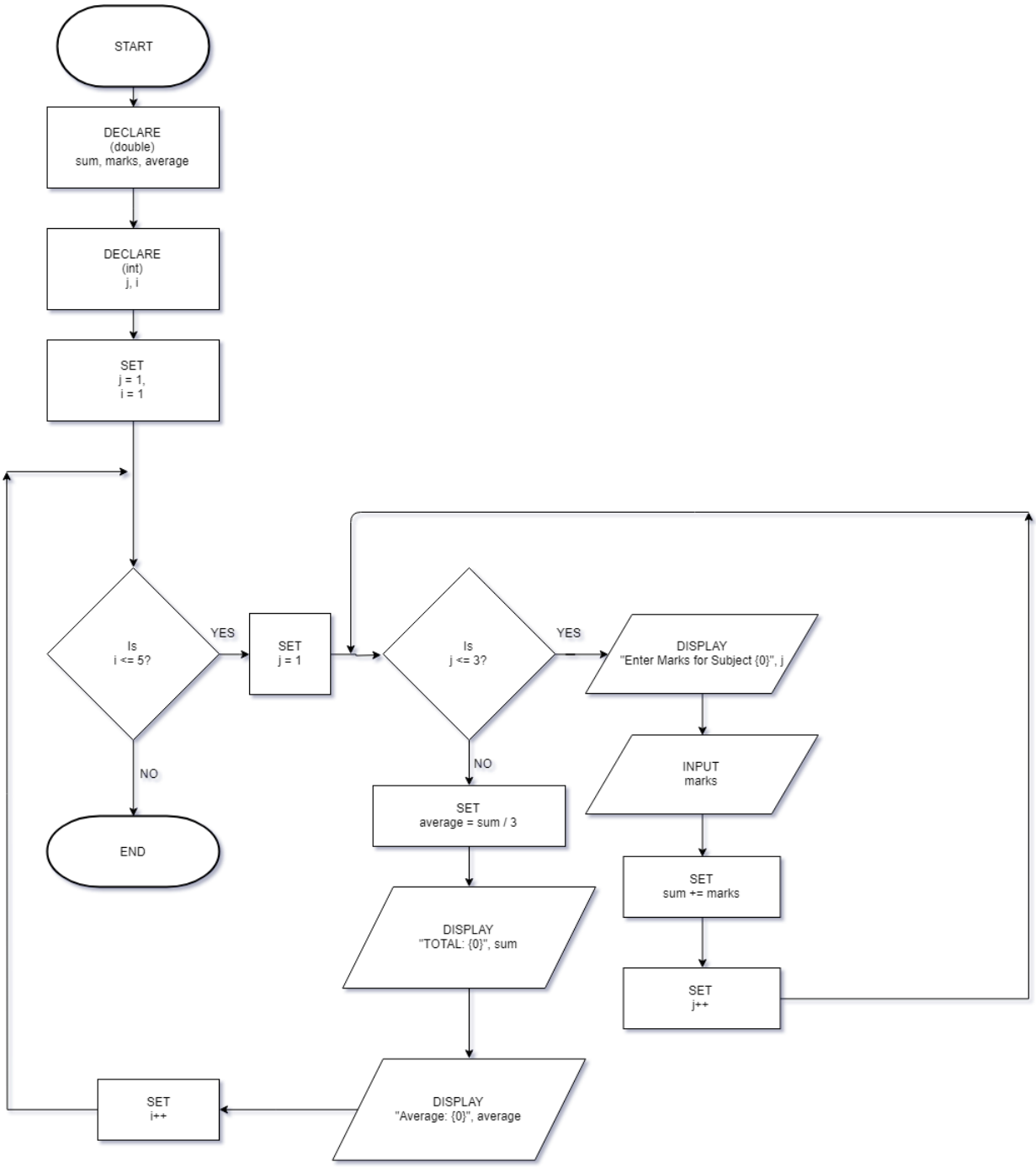
```
DECLARE (int) n, sum, i
SET sum = 0
SET I = 0
DISPLAY “Enter Value of n: ”
INPUT n
WHILE (i <=n)
        SET sum = sum + 2
        i++
END WHILE
DISPLAY “TOTAL: {0}”, sum
```

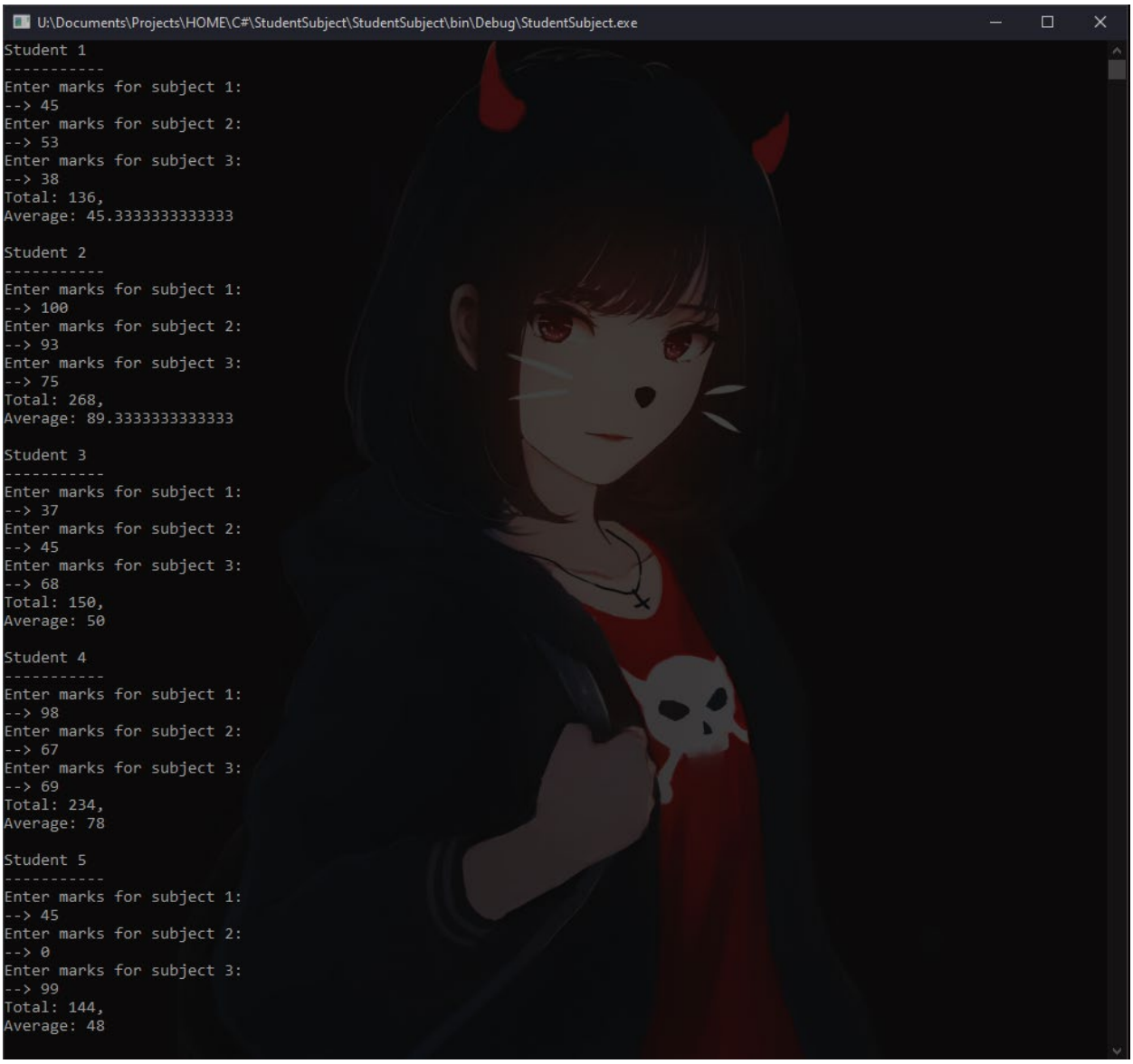

START
DECLARE
(int)
n, sum, i
SET
sum = 0
SET
i = 1
DISPLAY
"Enter Value of n: "
INPUT
n
Is
i <= n
?
YES
SET
sum = sum + i
SET
i = i + 1
NO
DISPLAY
"TOTAL: {0}", sum
END


U:\Documents\Projects\HOME\C#\SumOfFirstOdds\SumOfFirstOdds\bin\Debug\SumOfFirstOdds.exe
Enter value of n
--> 5
Sum=0
i=1
Sum = Sum + i
(New Sum)0 = (Sum)0 + (i)1
(New Sum)1 = (Sum)1 + (i)3
(New Sum)4 = (Sum)4 + (i)5
Total: 9

3.

```
DECLARE (double) sum, marks, average
DECLARE (int) j, i
SET i = 1
SET j = 1
SET sum, marks, average = 0

FOR i = 1 to 5
        FOR j = 1 to 3
                DISPLAY “Enter marks for subject {0}”, j
                INPUT marks
                SET sum += marks
                SET j++
        END FOR
        SET average = sum / 3
        DISPLAY “TOTAL: {0}”, sum
        DISPLAY “Average: {0}”, average
        SET i++
END FOR
```


START
DECLARE
(double)
sum, marks, average
DECLARE
(int)
j, i
SET
j = 1,
i = 1
Is
i <= 5?
YES
NO
END
SET
j = 1
Is
j <= 3?
YES
NO
DISPLAY
"Enter Marks for Subject {0}", j
INPUT
marks
SET
sum += marks
SET
j++
SET
average = sum / 3
DISPLAY
"TOTAL: {0}", sum
DISPLAY
"Average: {0}", average
SET
i++


U:\Documents\Projects\HOME\C#\StudentSubject\StudentSubject\bin\Debug\StudentSubject.exe
Student 1

Enter marks for subject 1:
--> 45
Enter marks for subject 2:
--> 53
Enter marks for subject 3:
--> 38
Total: 136,
Average: 45.3333333333333
Student 2

Enter marks for subject 1:
--> 100
Enter marks for subject 2:
--> 93
Enter marks for subject 3:
--> 75
Total: 268,
Average: 89.3333333333333
Student 3

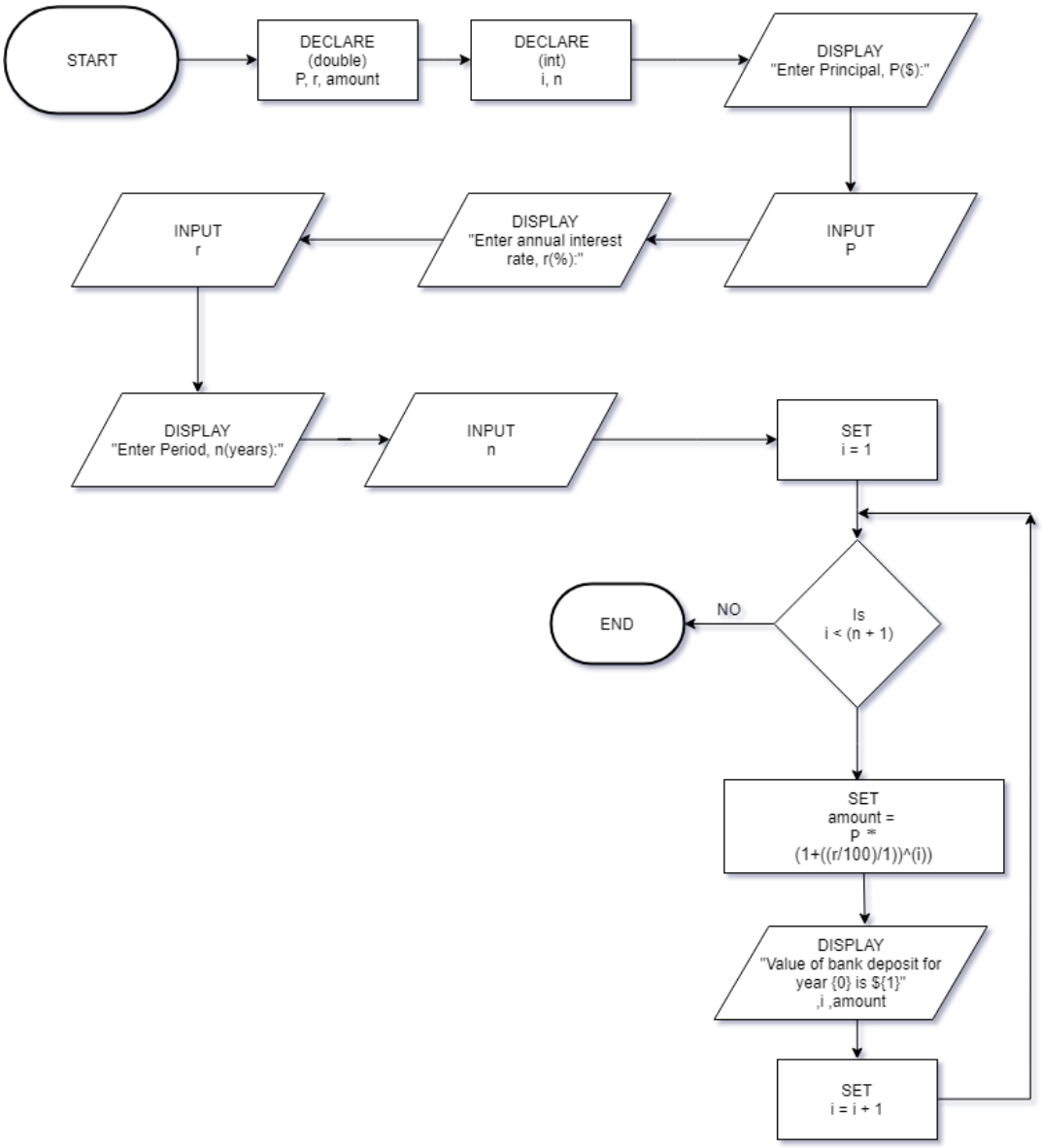
Enter marks for subject 1:
--> 37
Enter marks for subject 2:
--> 45
Enter marks for subject 3:
--> 68
Total: 150,
Average: 50
Student 4

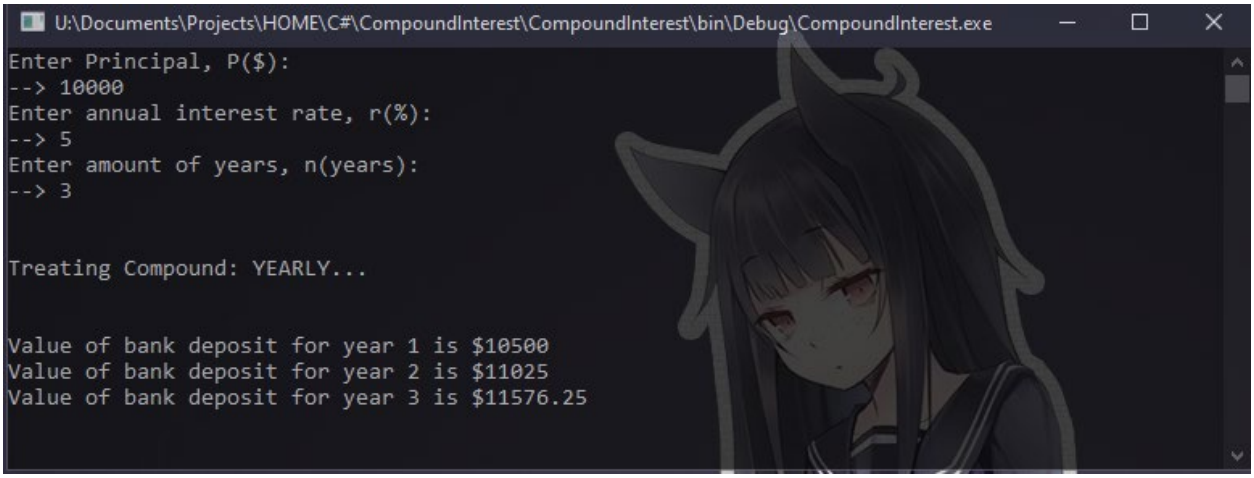
Enter marks for subject 1:
--> 98
Enter marks for subject 2:
--> 67
Enter marks for subject 3:
--> 69
Total: 234,
Average: 78
Student 5

Enter marks for subject 1:
--> 45
Enter marks for subject 2:
--> 0
Enter marks for subject 3:
--> 99
Total: 144,
Average: 48

4.

```
DECLARE (double) P, r, amount
DECLARE (int) i, n
DISPLAY “Enter Principal, P($): ”
INPUT P
DISPLAY “Enter annual interest rate, r(%): ”
INPUT r
DISPLAY “ENTER Period, n(years): ”
INPUT n

SET i = 1
DO
        SET amount = P * (1+((r/100)/1))^(i))
        DISPLAY “Value of bank deposit for years {0} is {1}”, i, amount
        SET i = i + 1
WHILE (i < (n+1))
```

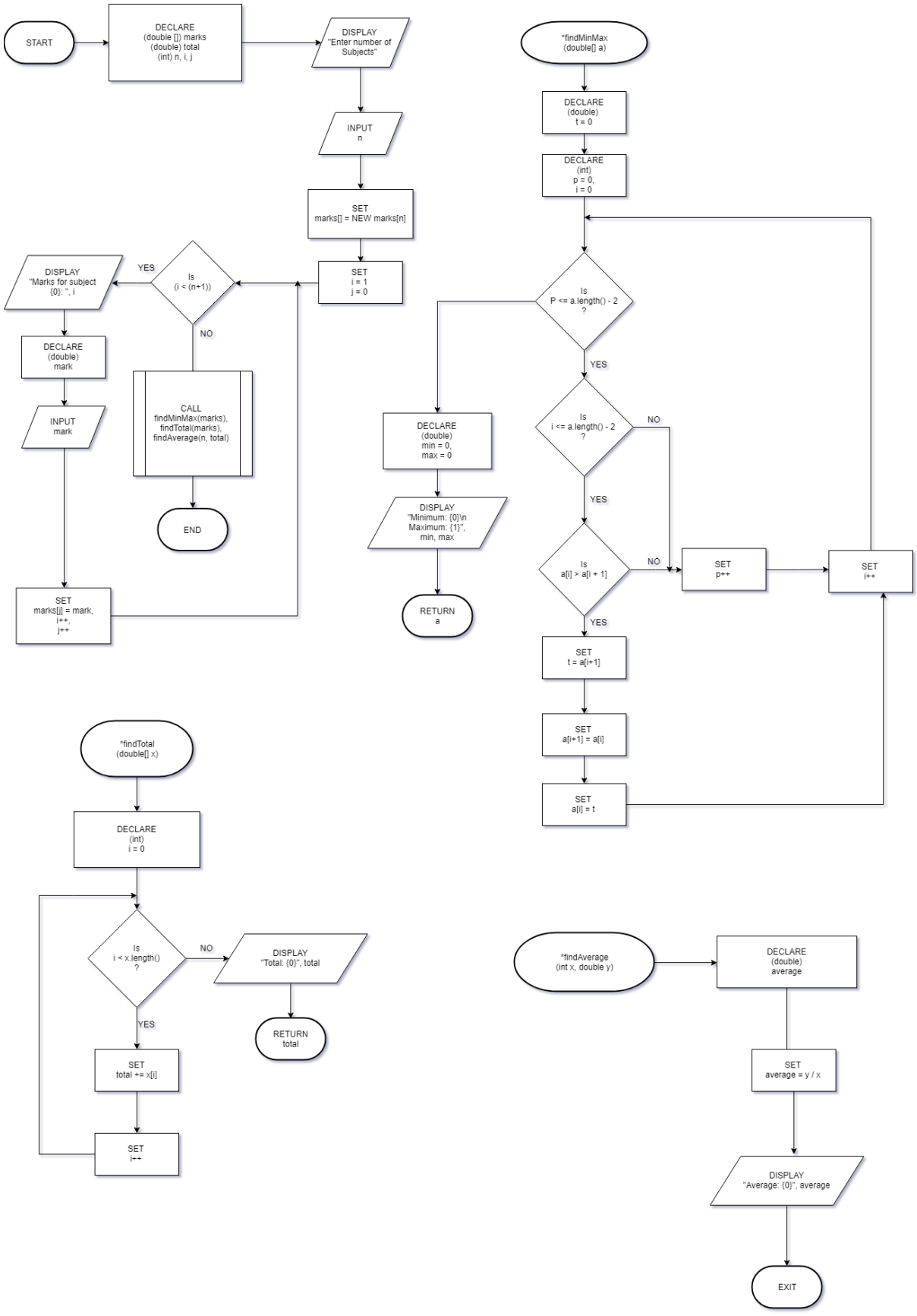

START
DECLARE
(double)
P, r, amount
DECLARE
(int)
i, n
DISPLAY
"Enter Principal, P($):"
INPUT
P
DISPLAY
"Enter annual interest
rate, r(%):"
INPUT
r
DISPLAY
"Enter Period, n(years):"
INPUT
n
SET
i = 1
Is
i < (n + 1)
NO
END
SET
amount =
P *
(1+((r/100)/1))^(i))
DISPLAY
"Value of bank deposit for
year {0} is ${1}"
,i ,amount
SET
i = i + 1

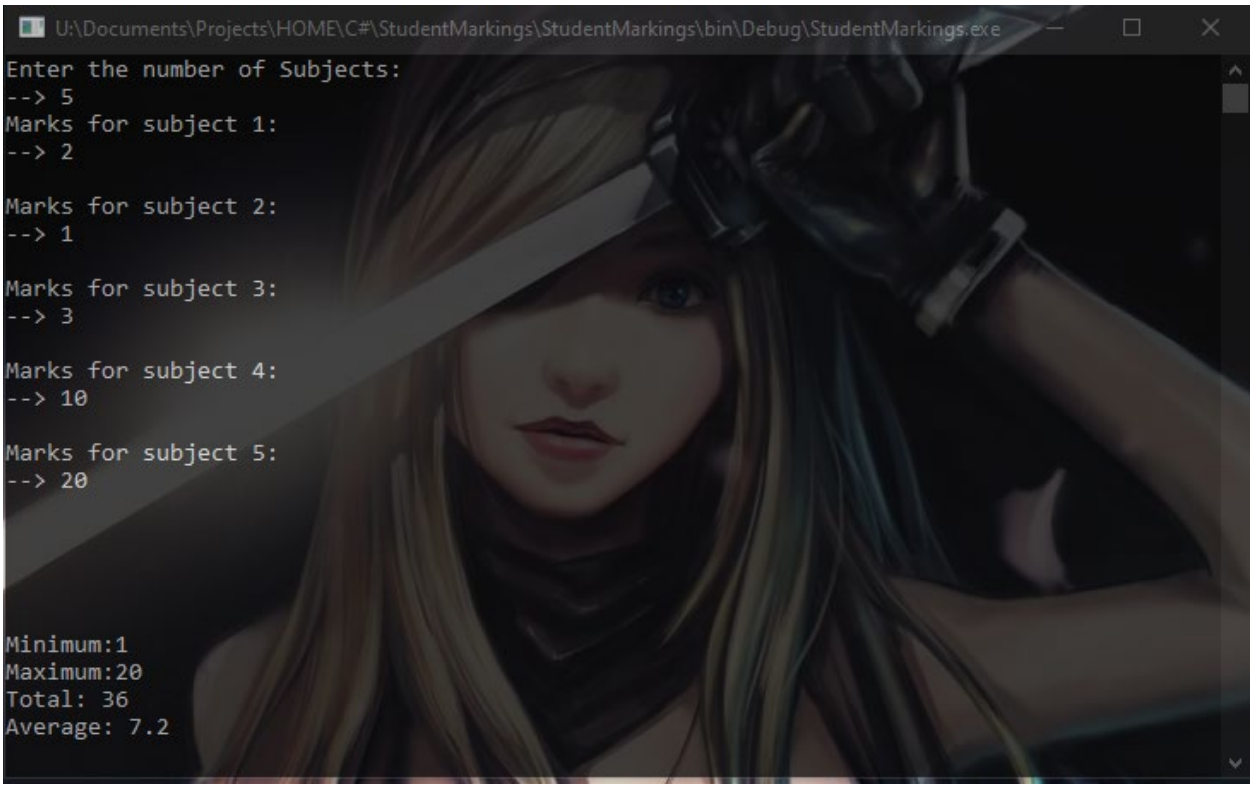

U:\Documents\Projects\HOME\C#\CompoundInterest\CompoundInterest\bin\Debug\CompoundInterest.exe
Enter Principal, P($):
--> 10000
Enter annual interest rate, r(%):
--> 5
Enter amount of years, n(years):
--> 3
Treating Compound: YEARLY...
Value of bank deposit for year 1 is $10500
Value of bank deposit for year 2 is $11025
Value of bank deposit for year 3 is $11576.25

5.

```
DECLARE (double[]) marks
DECLARE (double) total
DECLARE (int) n, i, j
DISPLAY "Enter number of subjects: "
INPUT n
SET marks[] = NEW marks[n]
SET i=1
SET j=0
DO
        DISPLAY "Marks for subject {0}: ", i
        DECLARE (double) mark
        INPUT mark
        SET marks[j] = mark
        SET i++
        SET j++
WHILE (i < (n+1))
CALL findMinMax(marks)
CALL findTotal(marks)
CALL findAverage(n, total)

FUNCTION findMinMax(double[] a)
        DECLARE (double t) = 0
        FOR (int) p = 0 TO a.length() - 2
                FOR (int) i = 0 TO a.length() – 2
                        IF (a[i] > a[i+1]) THEN
```

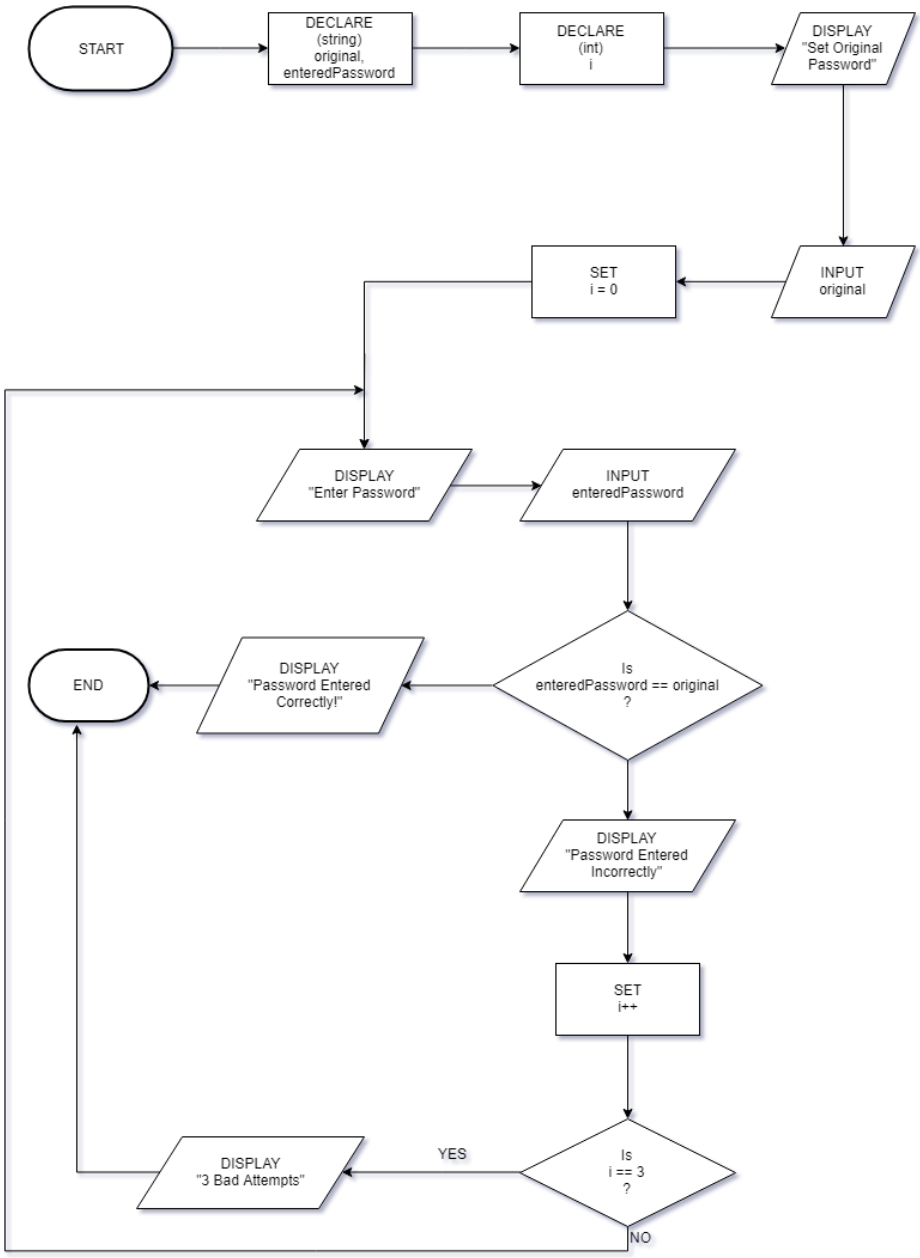
```
                    SET t = a[i+1]
                    SET a[i+1] = a[i]
                    SET a[i] = t
                    SET i++
                END FOR
                SET p++
            END FOR
        DECLARE (double) min, max
        DISPLAY “Minimum: {0}\nMaximum: {1}”, min, max
        RETURN a
END FUNCTION

FUNCTION findTotal (double[] x)
        FOR (int) i = 0 TO x.length()
            SET total += x[i]
            SET i++
        END FOR
        RETURN total
END FUNCTION

FUNCTION findAverage(int x, double y)
        DECLARE Average = y/x
        DISPLAY “Average: {0}”, average
END FUNCTION
```

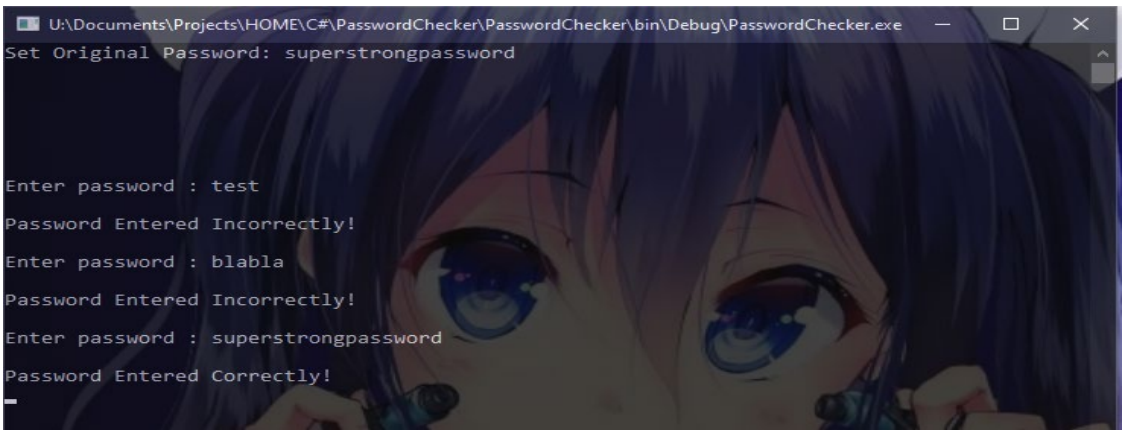

START
DECLARE
(double []) marks
(double) total
(int) n, i, j
DISPLAY
"Enter number of
Subjects"
INPUT
n
SET
marks[] = NEW marks[n]
SET
i = 1
j = 0
Is
(i < (n+1))
YES
NO
DISPLAY
"Marks for subject
{0}: ", i
DECLARE
(double)
mark
INPUT
mark
SET
marks[i] = mark,
i++,
j++
CALL
findMinMax(marks),
findTotal(marks),
findAverage(n, total)
END
*findMinMax
(double[] a)
DECLARE
(double)
t = 0
DECLARE
(int)
p = 0,
i = 0
Is
P <= a.length() - 2
?
YES
DECLARE
(double)
min = 0,
max = 0
DISPLAY
"Minimum: {0}\n
Maximum: {1}",
min, max
RETURN
a
Is
i <= a.length() - 2
?
NO
YES
Is
a[i] > a[i + 1]
NO
YES
SET
p++
SET
i++
SET
t = a[i+1]
SET
a[i+1] = a[i]
SET
a[i] = t
*findTotal
(double[] x)
DECLARE
(int)
i = 0
Is
i < x.length()
?
NO
YES
DISPLAY
"Total: {0}", total
RETURN
total
SET
total += x[i]
SET
i++
*findAverage
(int x, double y)
DECLARE
(double)
average
SET
average = y / x
DISPLAY
"Average: {0}", average
EXIT


U:\Documents\Projects\HOME\C#\StudentMarkings\StudentMarkings\bin\Debug\StudentMarkings.exe
Enter the number of Subjects:
--> 5
Marks for subject 1:
--> 2
Marks for subject 2:
--> 1
Marks for subject 3:
--> 3
Marks for subject 4:
--> 10
Marks for subject 5:
--> 20
Minimum:1
Maximum:20
Total: 36
Average: 7.2

6.

```
DECLARE (string) original, enteredPassword
DECLARE (int) i
DISPLAY “Set Original Password: ”
INPUT original
SET i = 0
DO
        DISPLAY “Enter Password: ”
        INPUT enteredPassword
        IF (enteredPassword == original) THEN
                DISPLAY “Password Entered Correctly!”
                BREAK;
        ELSE
                DISPLAY “Password Entered Incorrectly!”
                SET i++
        END IF
        IF (i == 3) THEN
                DISPLAY “3 Bad Attempts”
                BREAK
        ENDIF
WHILE (i < 3)
```


START
DECLARE (string) original, enteredPassword
DECLARE (int) i
DISPLAY "Set Original Password"
INPUT original
SET i = 0
DISPLAY "Enter Password"
INPUT enteredPassword
Is enteredPassword == original ?
DISPLAY "Password Entered Correctly!"
END
DISPLAY "Password Entered Incorrectly"
SET i++
Is i == 3 ?
YES
DISPLAY "3 Bad Attempts"
NO


U:\Documents\Projects\HOME\C#\PasswordChecker\PasswordChecker\bin\Debug\PasswordChecker.exe
Set Original Password: superstrongpassword
Enter password : test
Password Entered Incorrectly!
Enter password : blabla
Password Entered Incorrectly!
Enter password : superstrongpassword
Password Entered Correctly!