

Appendix A

Programming Score = 10

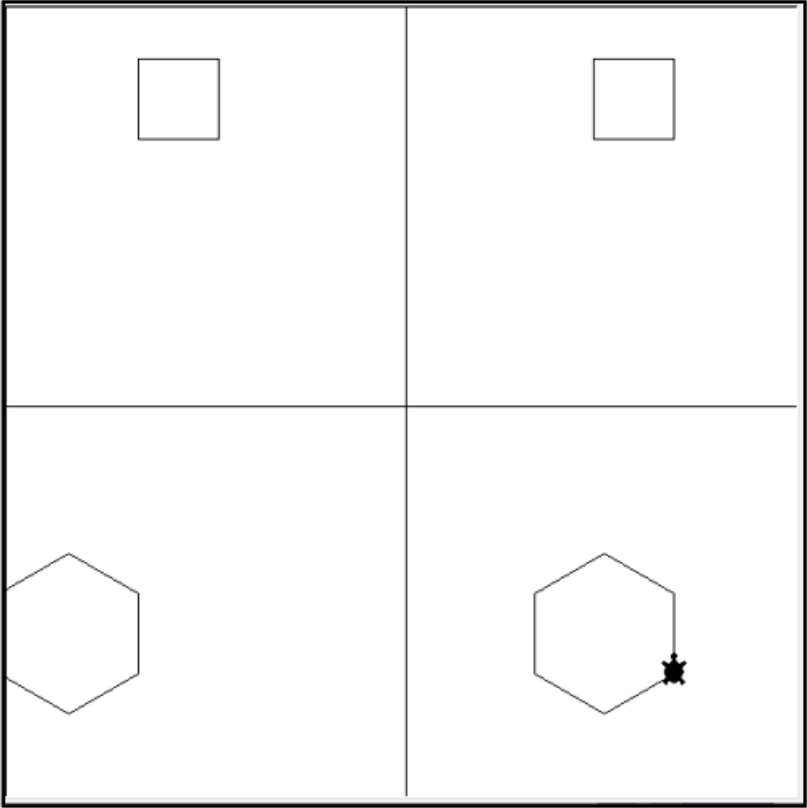
```
1 print("Welcome to GSSS Grading system")
2 print("You will be asked to enter students'scores in 6 subjects")
3 while True:
4     student=input("Please enter name of student")
5     eng=int(input("Please Enter score in English"))
6     math=int(input("Please Enter score in Mathematics"))
7     agric=int(input("Please Enter score in Agric"))
8     chem=int(input("Please Enter score in Chemistry"))
9     bio=int(input("Please Enter score in Biology"))
10    phy=int(input("Please Enter score in Physics"))
11    total=eng+math+agric+chem+bio+phy
12    average = total/6
13    print("*****")
14    print("Name:",student)
15    print("total:",total)
16    print("average:",average)
17    if average >= 70:
18        print("Grade=A")
19    elif average >= 60:
20        print("Grade=B")
21    elif average >= 50:
22        print("Grade=C")
23    elif average >= 40:
24        print("Grade=P")
25    else:
26        print("Grade=F")
27    print("*****")
28
29 *****Student's source code shown above*****
30
31 #Comment = complete & correct solution, no error
32 #Programming Score = 10
33 #variable = 9; decision = 5; loop = 1
34 #operators = 19; keyword = 7; built-in function = 25
35 #third-party function = 0; user-def function = 0
36 #lines of code = 27
37 #logical error = 0; syntax error = 0
```

```
Welcome to GSSS Grading system
You will be asked to enter students'scores in 6 subjects
Please enter name of student Michael Bright
Please Enter score in English78
Please Enter score in Mathematics 89
Please Enter score in Agric 86
Please Enter score in Chemistry 75
Please Enter score in Biology 68
Please Enter score in Physics80
*****
Name: Michael Bright
total: 476
average: 79.33333333333333
Grade=A
*****
Please enter name of student Gloria Excelsis
Please Enter score in English 75
Please Enter score in Mathematics 55
Please Enter score in Agric 78
Please Enter score in Chemistry 72
Please Enter score in Biology 70
Please Enter score in Physics65
*****
Name: Gloria Excelsis
total: 415
average: 69.16666666666667
Grade=B
*****
Please enter name of student
```

Example of student's artefact with a programming score of 10 in the Grade Point Calculator task (boys' Day 4). The trailing comment in red font shows the charted programming features. The result is shown within the box in blue font.

Programming Score = 8

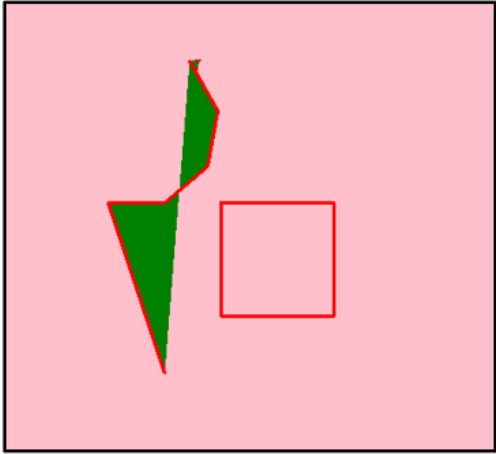
```
1 import turtle
2 turtle.setup(600,600)
3 bingo=turtle.Turtle()
4 bingo.shape("turtle")
5 bingo.goto(0,300)
6 bingo.penup()
7 bingo.forward(300)
8 bingo.right(90)
9 bingo.goto(300,0)
10 bingo.pendown()
11 bingo.goto(-300,0)
12 bingo.penup()
13 bingo.forward(300)
14 bingo.left(90)
15 bingo.goto(0,0)
16 bingo.pendown()
17 bingo.goto(0,-300)
18 bingo.penup()
19 bingo.goto(-200,200)
20 bingo.pendown()
21 for x in range(4):
22     bingo.forward(60)
23     bingo.left(90)
24 bingo.penup()
25 bingo.goto(200,200)
26 bingo.seth(90)
27 bingo.pendown()
28 for x in range(4):
29     bingo.forward(60)
30     bingo.left(90)
31 bingo.seth(270)
32 bingo.penup()
33 bingo.goto(-200,-200)
34 bingo.seth(90)
35 bingo.pendown()
36 for x in range(6):
37     bingo.forward(60)
38     bingo.left(60)
39 bingo.penup()
40 bingo.seth(0)
41 bingo.goto(200,-200)
42 bingo.seth(90)
43 bingo.pendown()
44 for x in range(6):
45     bingo.forward(60)
46     bingo.left(60)
47 #####Student's source code shown above#####
48 #Comment = complete solution but minor logical error(polygons not centered)
49 #Programming Score = 8
50 #variable = 1; decision = 0; loop = 4
51 #operators = 1; keyword = 9; built-in function = 4
52 #third-party function = 41; user-def function = 0
53 #lines of code = 46
54 #logical error = 1; syntax error = 0
```



Example of student's artefact with a programming score of 8 in the Polygons in Quadrants task (girls' Day 2). The trailing comments in red font show the charted programming features. The result is shown within the box.

Programming Score = 6

```
1 import turtle
2 turtle.setup(600,600)
3 turtle.bgcolor("pink")
4 turtle.color("red","green")
5 turtle.pensize(3)
6 turtle.begin_fill()
7 for x in range(4):
8     turtle.forward(100)
9     turtle.left(90)
10 ###turtle.penup
11 turtle.penup()
12 turtle.goto(-50,-50)
13 turtle.pendown()
14 turtle.begin_fill()
15 turtle.goto(-100,100)
16 for x in range(4):
17     turtle.forward(50)
18     turtle.left(40)
19 turtle.end_fill()
20
21 #####Student's source code shown above#####
22 #Comment = incomplete solution with major logical errors(not concentric squares)
23 #Programming Score = 6
24 #variable = 0; decision = 0; loop = 2
25 #operators = 0; keyword = 5; built-in function = 2
26 #third-party function = 15; user-def function = 0
27 #lines of code = 18
28 #logical error = 1; syntax error = 1(turtle.penup in line 10)|
```



Example of student's artefact with a programming score of 6 in the Concentric Square task (girls' Day 5). The trailing comments in red font show the charted programming features. The result is shown within the box.

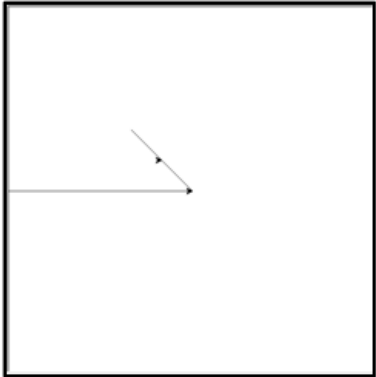
Programming Score = 4

```
1 print("thank you for shopping @ sleek stationary company Ltd")
2 print("quantity description unit total")
3 penP=int(input("enter the quantity of pen "))
4 pencilP=(int("enter the quantity of pencil"))## no input
5 eraserP(int("enter the quantity of eraser")) ## no input, no assignment operator
6 while True:
7     penQ=int(input("quantity of pen in shopping cart?"))
8     pencilQ=int(input("quantity of pencil in shopping cart?"))
9     eraserQ=int(input("quantity of eraser in shopping cart?"))
10 penTotal=penP*penQ
11 pencil=pencilP*pencilQ
12 eraserTotal=eraserP*eraserQ
13 total=penTotal+pencilTotal+eraserTotal ## no pencilTotal
14 print("sleek stationary company Ltd")
15 print(".....")
16 print("Quantity""price""total")
17
18
19 ##*****Student's source code shown above*****
20 #Comment = solution attempted with major logical errors
21 #Comment = major syntax errors (lines 4,5 and 13)
22 #Comment = no output (requires several levels of debugging)
23 #Programming Score = 4
24 #variable = 10; decision = 0; loop = 1
25 #operators = 14; keyword = 2; built-in function = 15
26 #third-party function = 0; user-def function = 0
27 #lines of code = 16
28 #logical error = 2; syntax error = 3
```

Example of student's artefact with a programming score of 4 in the Point of Sale Simulator task (boys' Day 5). The trailing comments in red font show the charted programming features.

Programming Score = 2

```
1 import turtle
2 turtle.setup(600,600)
3 turtle.Turtle()
4 turtle.goto(-300,0)
5 turtle.penup()
6 turtle.goto(0,0)
7 turtle.pendown()
8 turtle.goto(-100,100)
9 turtle.penup()
10 for x in range (4):
11     turtle.forward(100)
12     turtle.left(90)
13 turtle.penup()
14 turtle.goto(-50,50)
15 turtle.pendown()
16
17 #####Student's source code shown above#####
18 #Comment = submitted source code, no tangible attempt to solve the task
19 #Comment = major logical flaws
20
21 #Programming Score = 2
22 #variable = 0; decision = 0; loop = 1
23 #operators = 0; keyword = 3; built-in function = 1
24 #third-party function = 13; user-def function = 0
25 #lines of code = 15
26 #logical error = 2; syntax error = 0
```



Example of student's artefact with programming score of 2 in the Concentric Square (girls' Day

5). The trailing comments in red font show the charted programming features. The result is shown within the box.