JOBSHEET 4

Pseudocode & Flowchart

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Labs Activity

Question! (Experiment 1)

1. From experiment 1 above, modify the pseudocode by creating a new variable phi to store 3.14. And in the circumference and area calculation, replace 3.14 by using phi (use phi instead of 3.14 in the calculation).
2. Create the flowchart from the modified pseudocode at question 1!
3. Implements the modified pseudocode/flowchart into a program (source code)!

Answer!

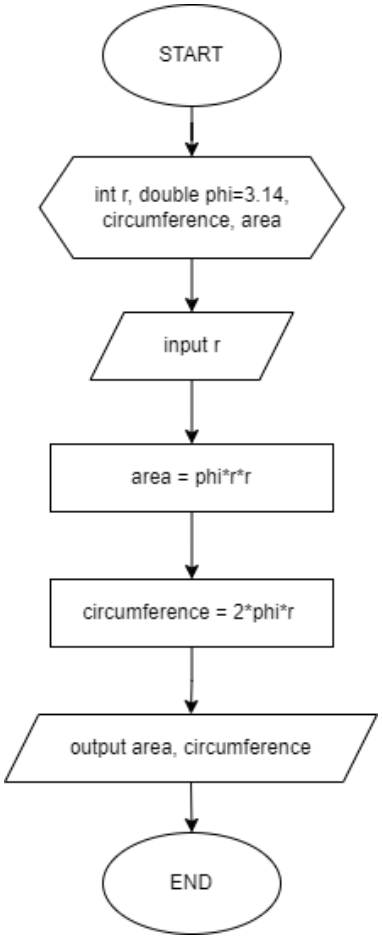
1.

```
Algorithm: Circle24
(input radius and calculate the circumference and area of
the circle)

Declaration:
r : int
phi=3.14, circumference, area : double

Description:
1. Print "Input radius"
2. Read r
3. Area = phi*r*r
4. Circumference = 2*phi*r
5. Print area
6. Print circumference
```

2.



3.

Circle24.java 1

Practice > Week 4 > Circle24.java > Circle24 > main(String[])

```java
import java.util.Scanner;

public class Circle24 {
    Run | Debug
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        int r;
        double phi=3.14, circumference, area;

        System.out.println(x:"Input radius: ");
        r = input.nextInt();
        area = phi*r*r;
        circumference = 2*phi*r;
        System.out.println("Area: " + area);
        System.out.println("Circumference: " + circumference);
    }
}
```

Question! (Experiment 2)

1. Create a pseudocode based on the above flowchart and modify it by getting the salary and salaryDeduction from the user input!
2. Implement the modified pseudocode in the above question, into a java program!

Answer!

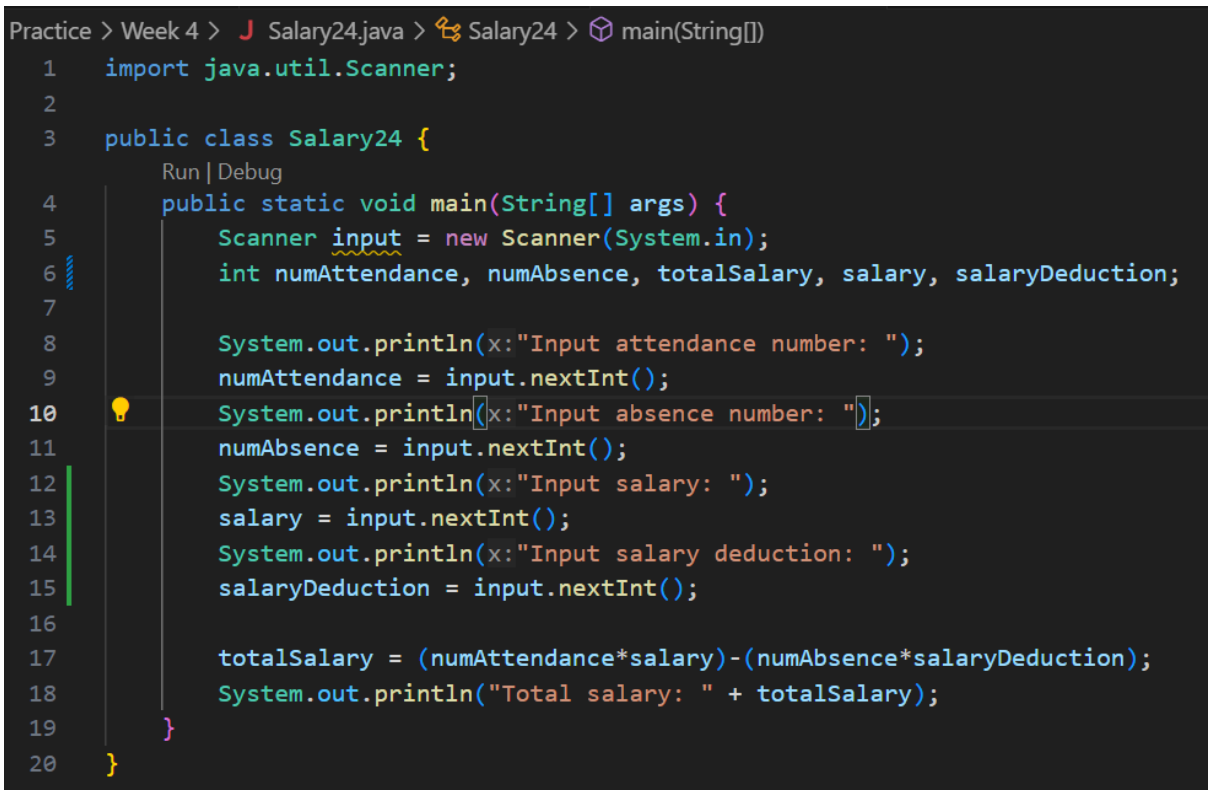
1.

```
Algorithm: Salary24
(input attendance number, absence number, salary, salary deduction
and calculate the total salary)

Declaration:
numAttendance, numAbsence, totalSalary, salary, salaryDeduction :
int

Description:
1. Print “Input attendance number”
2. Read numAttendance
3. Print “Input absence number”
4. Read numAbsence
5. Print “Input salary”
6. Read salary
7. Print “Input salary deduction”
8. Read salaryDeduction
9. Total salary=(numAttendance*salary)-(numAbsence*salaryDeduction)
10.   Print “Total salary“
11.   Print totalSalary
```

2.



Question! (Experiment 3)

1. Modify the pseudocode and flowchart above by adding user input for **bookBrand** and **pageCount**, then change the **discount** to get the user input as well!
2. Implement the changes in a program!

Answer!

1.

```
Algorithm: NotebooksPurchasePriceStudent24
(input book brand, page count, price, quantity and calculate the
discount and total price)

Declaration:
bookBrand : String
pageCount, price, quantity: int
discount=0.15, totalPrice, purchasePrice, totalDiscount : double

Description:
1. print “Input book brand”
2. read bookBrand
3. print “Input page count”
4. read pageCount
5. print “Input price”
6. read price
7. print “Input quantity”
8. read quantity
9. totalPrice = price * quantity
10.   totalDiscount=totalPrice*discount
11.   purchasePrice= totalPrice – totalDiscount
12.   print “Book brand”
13.   print bookBrand
14.   print “Page count”
15.   print pageCount
16.   print “The total discount”
17.   print totalDiscount
18.   print "The Purchase Price”
19.   print purchasePrice
```

2.

```java
import java.util.Scanner;

public class PurchasePrice24 {
    Run | Debug
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        String bookBrand;
        int pageCount, price, quantity;
        double discount=0.15, totalPrice, purchasePrice, totalDiscount;

        System.out.println(x:"Input book brand: ");
        bookBrand = input.nextLine();
        System.out.println(x:"Input page count: ");
        pageCount = input.nextInt();
        System.out.println(x:"Input price: ");
        price = input.nextInt();
        System.out.println(x:"Input quantity: ");
        quantity = input.nextInt();

        totalPrice=price*quantity;
        totalDiscount=totalPrice*discount;
        purchasePrice=totalPrice-totalDiscount;

        System.out.println("Total discount: " + totalDiscount);
        System.out.println("Final purchase price: " + purchasePrice);
    }
}
```

Assignment

1. Create pseudocode based on your group project. The pseudocode that you create can be identified from the processes (it could be input, output and arithmetic process etc.)!
2. From the answer to question 1, please create the flowchart for each pseudocode that is already created! Implements the modified pseudocode/flowchart into a program (source code)!
3. Implement the pseudocode/flowchart into a program. Please make a note that the program will only include input, output, variable declarations, arithmetic operation (and any other operator). Since we haven't reached condition selection, looping, method, array, then you do not have to use it right now.

Answer!

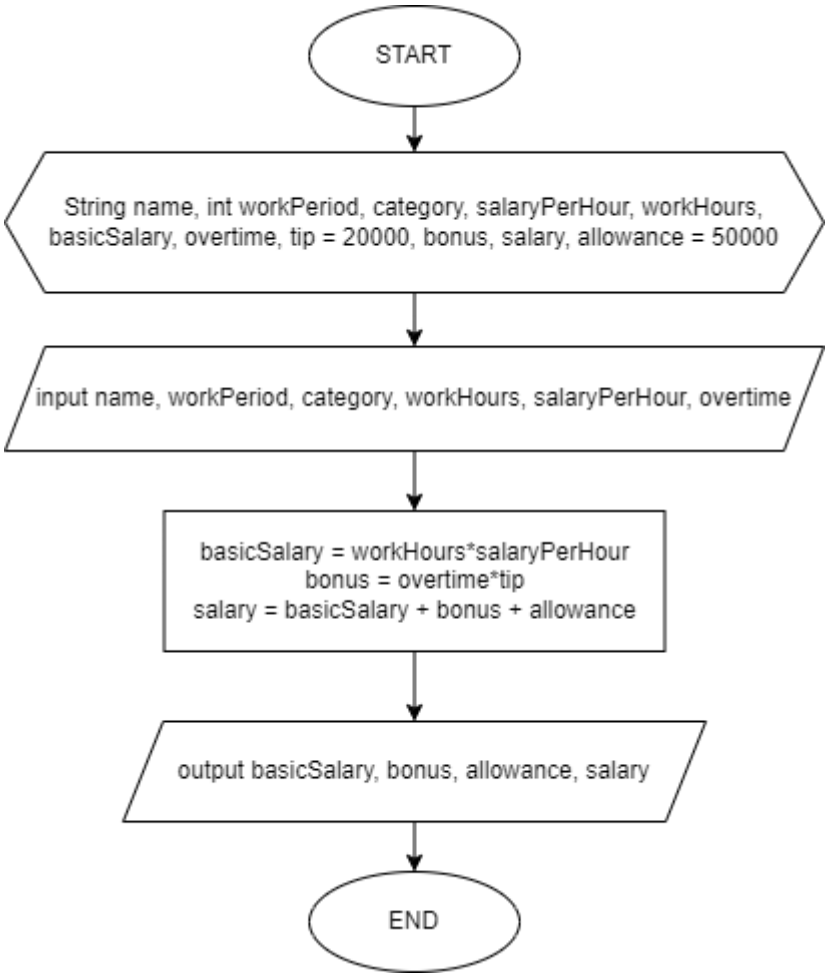
1.

```
Algorithm: EmployeePayrollSystem
(input name, category, work hours, salary per hour, overtime and
calculate the basic salary, bonus, allowance, and salary)

Declaration:
name : String
workPeriod, category, salaryPerHour, workHours, basicSalary,
overtime,  tip = 20000, bonus, salary, allowance = 50000: int

Description:
1. print "              Employee Payroll              "
2. print "============================================="
3. print “Name”
4. read name
5. print “Work Period”
6. read workPeriod
7. print “Category”
8. read category
9. print “Work Hours”
10.   read workHours
11.   print “Salary Per Hour”
12.   read salaryPerHour
13.   print “Overtime”
14.   read overtime
15.   basicSalary = workHours*salaryPerHour
16.   bonus = overtime*tip
17.   salary = basicSalary + bonus + allowance
18.   print "============================================="
19.   print “Basic Salary”
20.   print basicSalary
21.   print “Bonus”
22.   print bonus
23.   print “Allowance”
24.   print allowance
25.   print “Salary”
26.   print salary
```

2.



3.

```
5    Scanner sc = new Scanner(System.in);
6    System.out.println(x:"             Employee Payroll             ");
7    System.out.println(x:"=========================================");
8
9    String name;
10   int workPeriod, category, workHours, salaryPerHour, basicSalary, overtime,  tip = 20000, bonus, salary, allowance = 50000;
11
12   System.out.print(s:"Name: ");
13   name = sc.nextLine();
14   System.out.print(s:"Work Period: ");
15   workPeriod = sc.nextInt();
16   System.out.print(s:"Category: ");
17   category = sc.nextInt();
18   System.out.print(s:"Work Hours: ");
19   workHours = sc.nextInt();
20   System.out.print(s:"Salary Per Hour: ");
21   salaryPerHour = sc.nextInt();
22   System.out.print(s:"Overtime: ");
23   overtime = sc.nextInt();
24
25   basicSalary = workHours*salaryPerHour;
26   bonus = overtime*tip;
27   salary = basicSalary + bonus + allowance;
28
29   System.out.println(x:"=========================================");
30   System.out.println("Basic Salary: " + basicSalary);
31   System.out.println("Bonus: " + bonus);
32   System.out.println("Allowance: " + allowance);
33   System.out.println("Salary: " + salary);
```