Assignment (ทฤษฎี) ครั้งที่ 2

วิชา 060243103 Problem Solving in IT

ตอนที่ 1

โดย

63-060216-2019-1 นาย สหรัถ ทองอินทร์

ห้อง IT 1-RA

เสนอ

ผู้ช่วยศาสตราจารย์สมชัย เชียงพงศ์พันธุ์

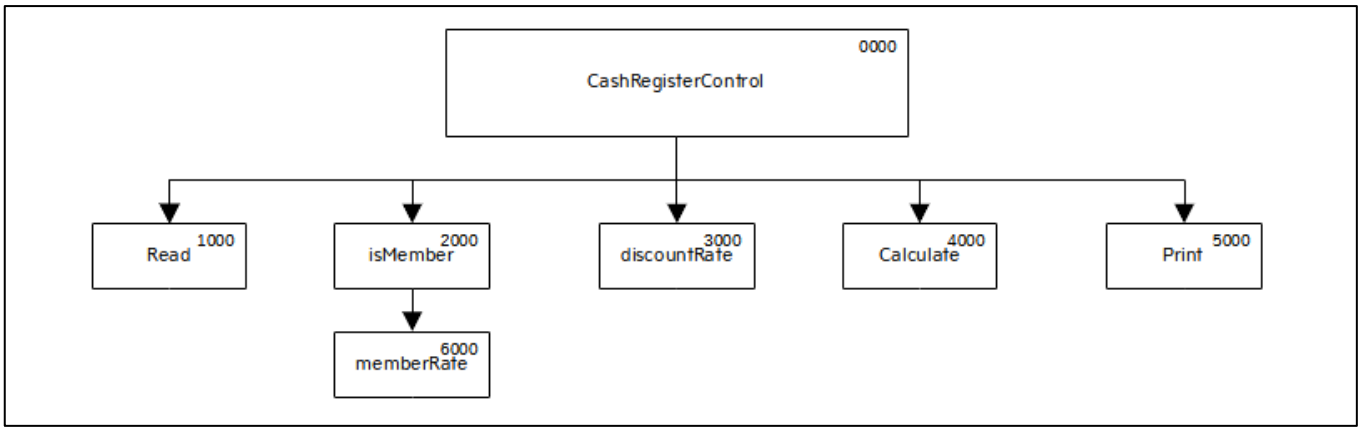
ภาควิชาเทคโนโลยีสารสนเทศ

คณะเทคโนโลยีและการจัดการอุตสาหกรรม

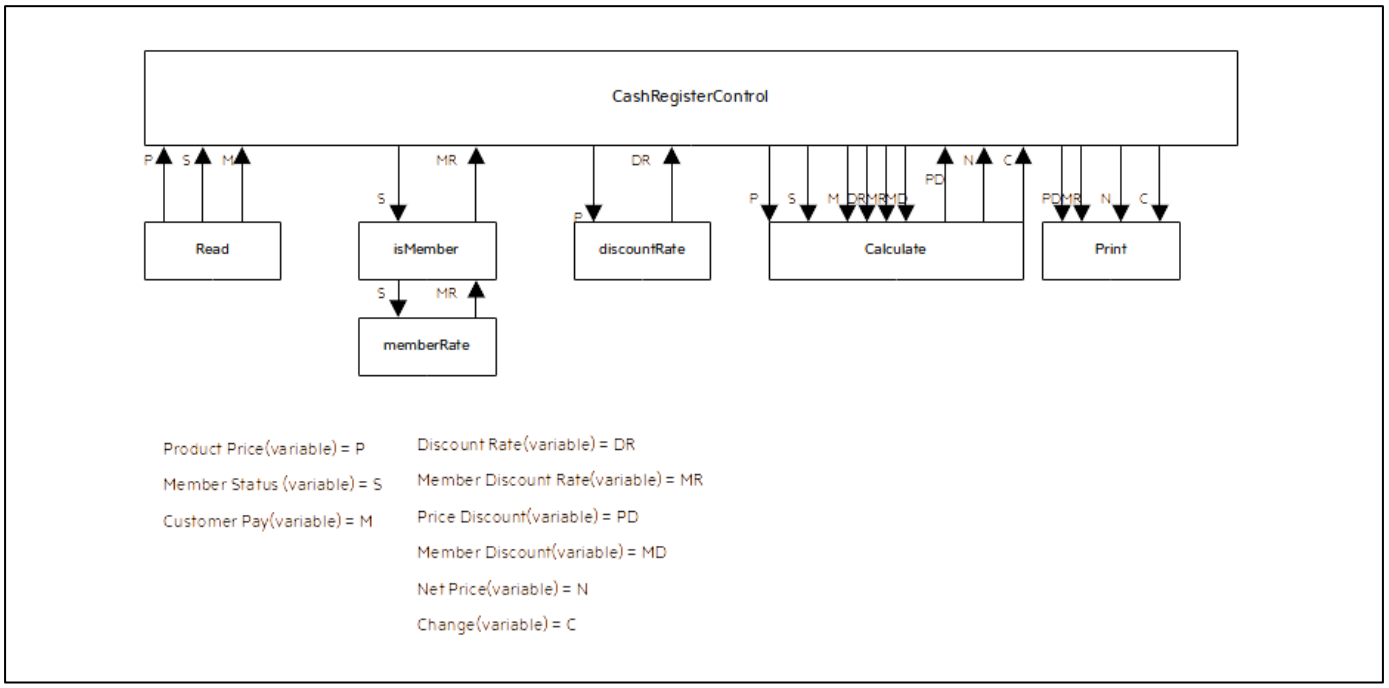
Problem Analysis Chart (PAC)

Given Data	Required Result
Product Price Member Status Customer Pay	Discount Rate Member Discount Rate Price Discount Member Discount Net Price Change
Required Processing	**Solution Alternatives**
Price Discount = Product Price * Discount Rate Member Discount = Product Price * Member Discount Rate Net Price = Product Price – Price Discount – Member Discount Change = Customer Pay – Net Price	1. Input Product Price, Member Status, Customer Pay. 2. Finding Member and Discount Rate by Compare Product Price and Member Status . 3. Calculate Price and Member Discount. 4. Calculate Net Price 5. Calculate Change

IPO Chart



Coupling Diagram



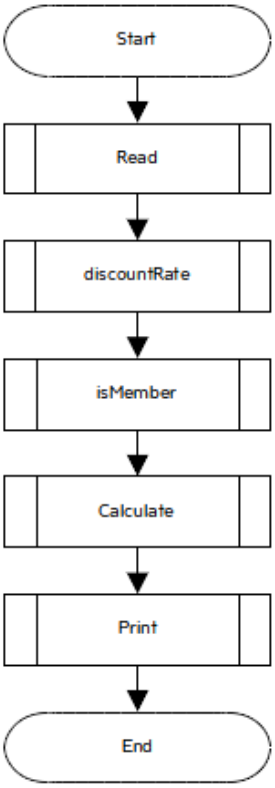
IPO Chart

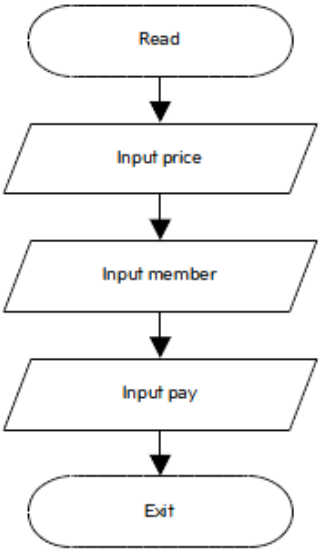
Input	Processing	Module Reference	Output
1. Product Price 2. Member Status 3. Customer Pay	1. Enter Input Data 2. Calculate Member Rate 3. Calculate Discount Rate 4. Calculate Price Discount, Net Price and Change 5. Print all Required Results	1000 2000 3000 4000 5000	All Required Results

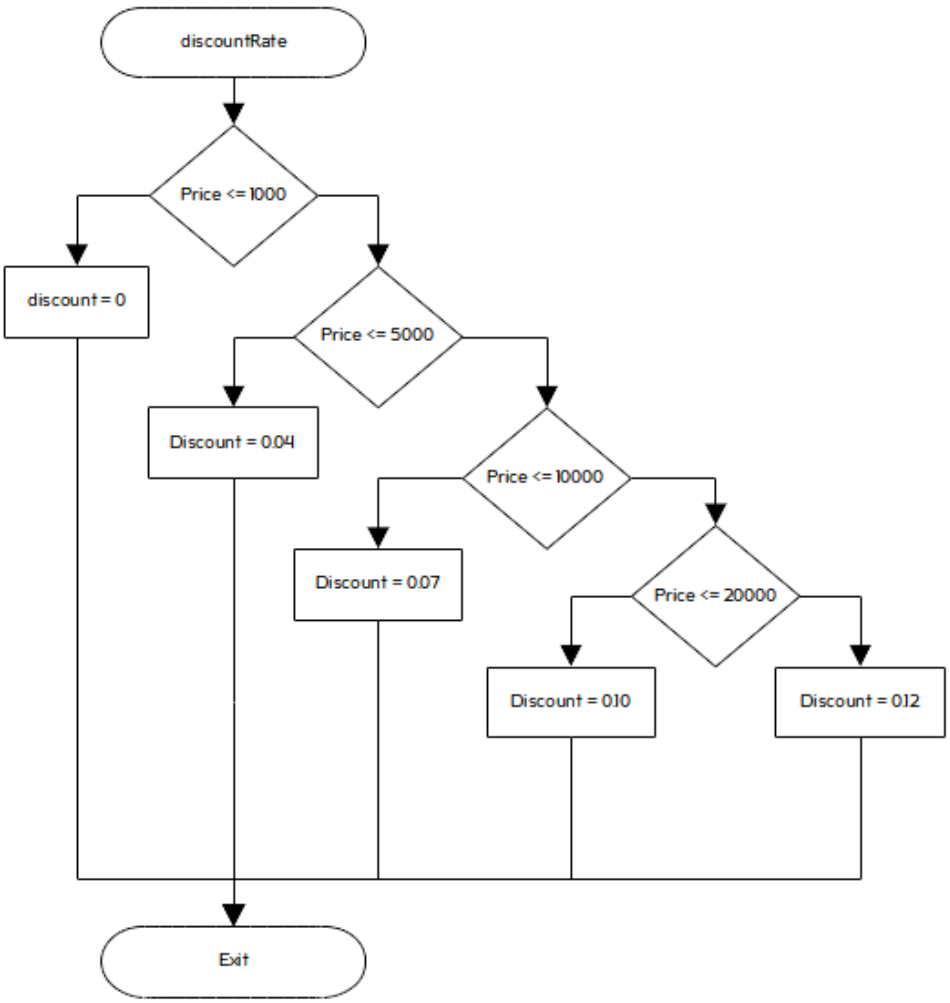
Data Dictionary

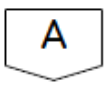
Item	Variable Name	Data Type	Module	Scope	Pseudonym/ Module	Error Check
Product Price	price	Real-Numeric	CashRegisterControl/ Read/discountRate/ /Calculate	Global Parameter	None	None
Member Status	member	Boolean	CashRegisterControl/ Read/isMember/member Rate/Calculate	Global Parameter	None	None
Customer Pay	pay	Real-Numeric	CashRegisterControl/ Read /Calculate	Global Parameter	None	None
Discount Rate	discount	Real-Numeric	CashRegisterControl/ isMember/memberRate	Global Parameter	None	None
Price Discount	price_discount	Real-Numeric	CashRegisterControl/ Calculate/ Print	Global Parameter	None	None
Member Discount	member_discount	Real-Numeric	CashRegisterControl/ discountRate/Calculate	Global Parameter	None	None
Net Price	netPrice	Real-Numeric	CashRegisterControl/ Calculate/ Print	Global Parameter	None	None
Change	change	Real-Numeric	CashRegisterControl/ Calculate/ Print	Global Parameter	None	None

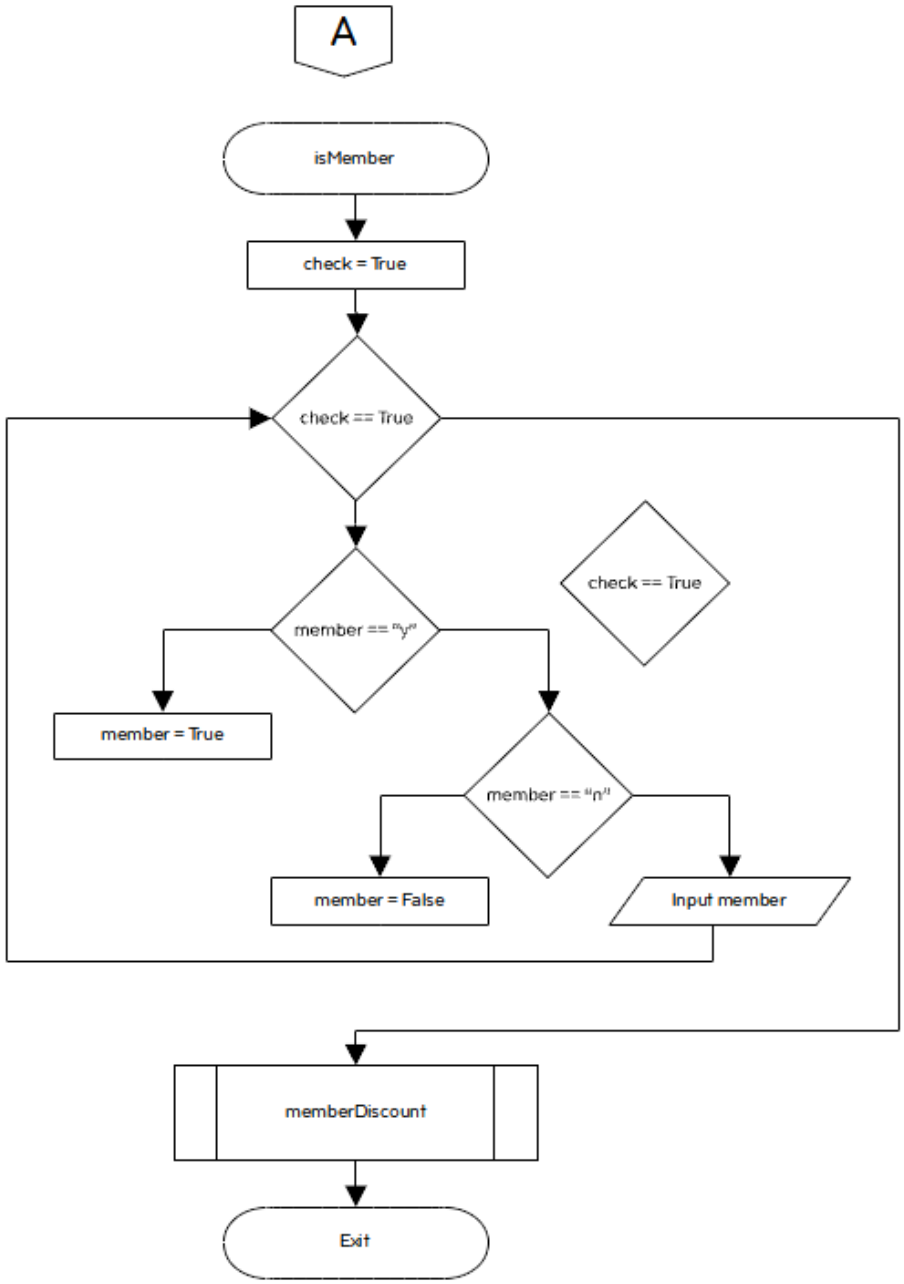
Flowchart


Start
Read
discountRate
isMember
Calculate
Print
End

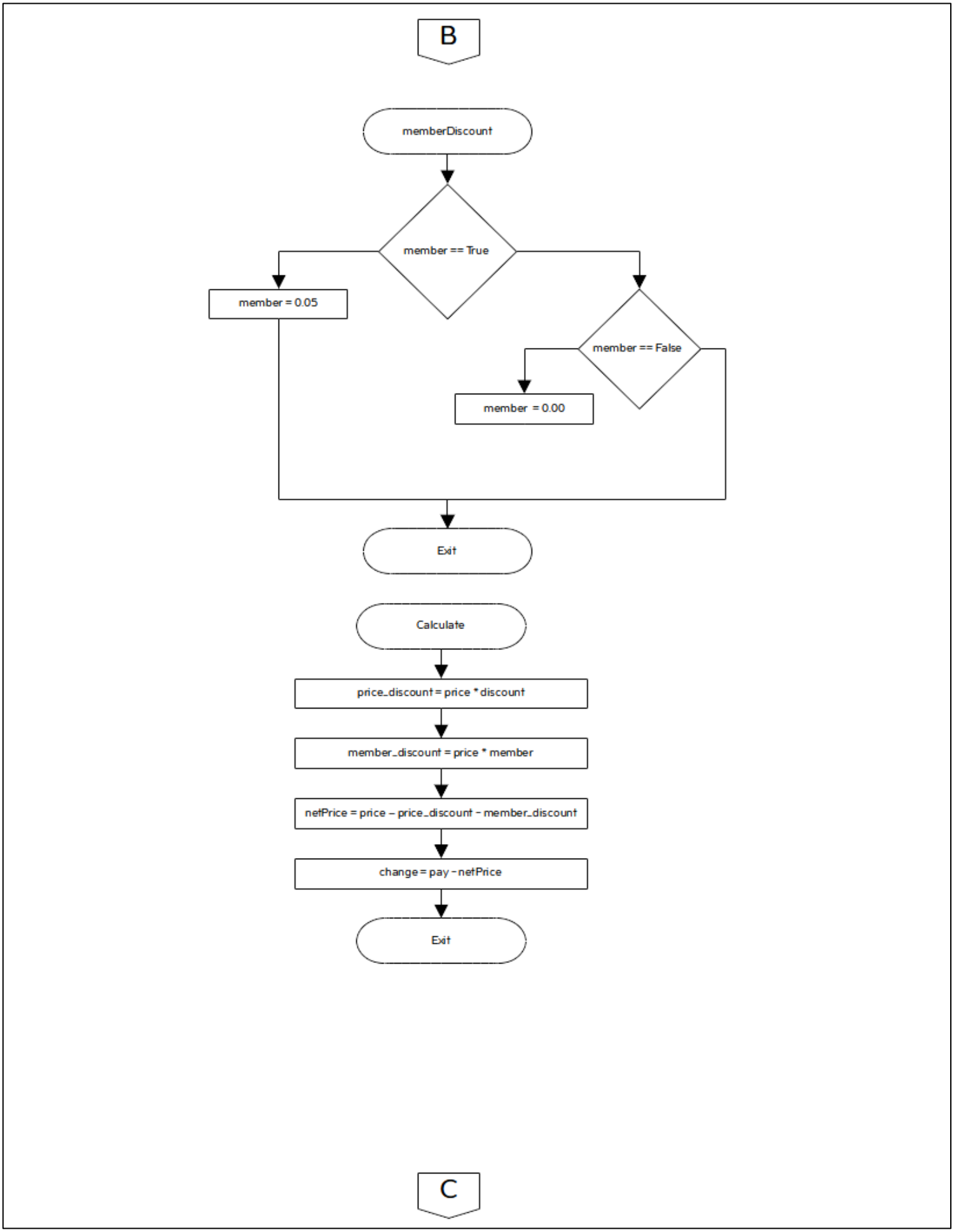

Read
Input price
Input member
Input pay
Exit

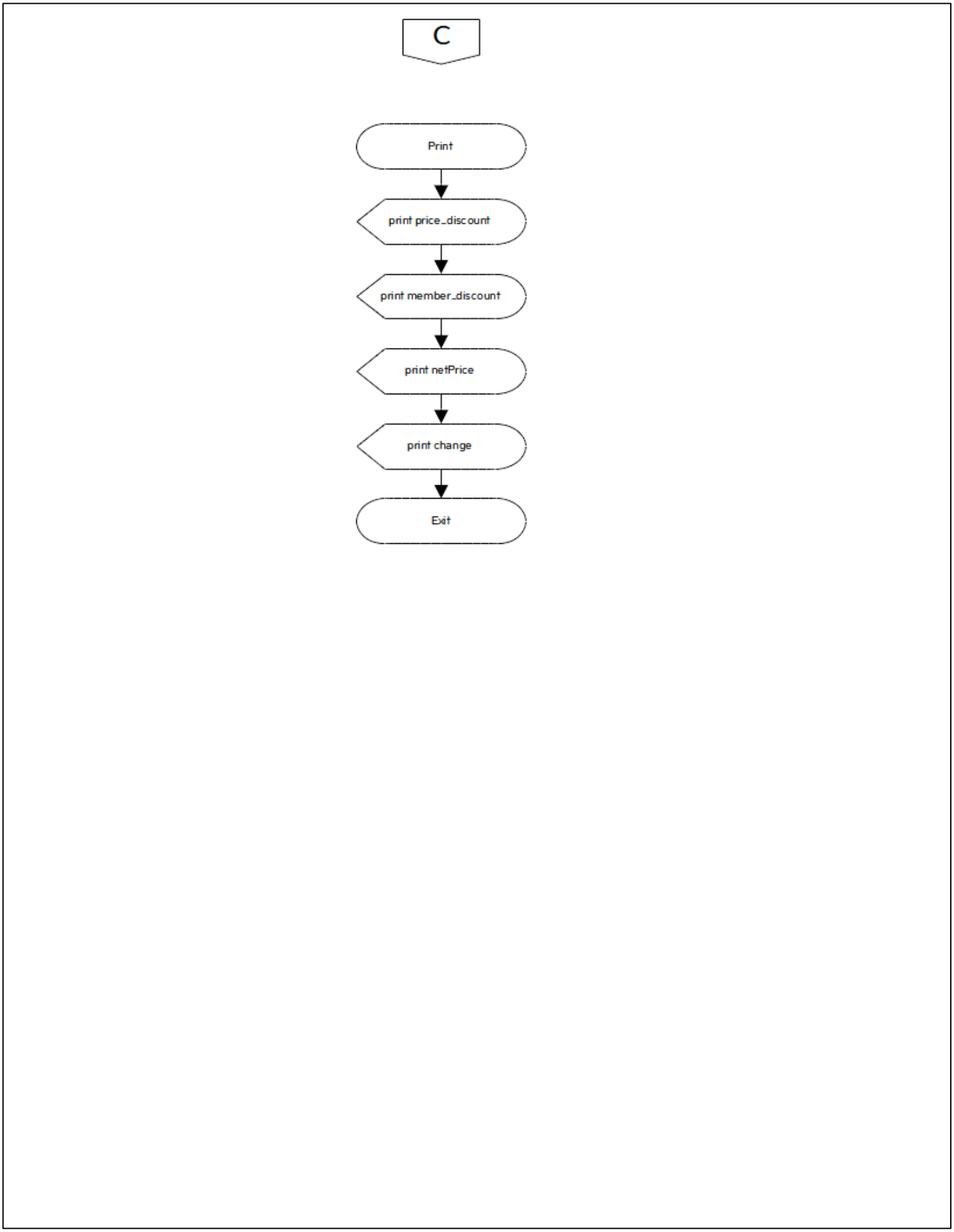

discountRate
Price <= 1000
discount = 0
Price <= 5000
Discount = 0.04
Price <= 10000
Discount = 0.07
Price <= 20000
Discount = 0.10
Discount = 0.12
Exit


A


A
isMember
check = True
check == True
member == "y"
check == True
member = True
member == "n"
member = False
Input member
memberDiscount
Exit

B


B
memberDiscount
member == True
member = 0.05
member == False
member = 0.00
Exit
Calculate
price_discount = price * discount
member_discount = price * member
netPrice = price – price_discount – member_discount
change = pay – netPrice
Exit
C


C
Print
print price_discount
print member_discount
print netPrice
print change
Exit

Code

```
def grade_char(score):
    gradeList = ['A','B+','B','C+','C','D+','D','F']
    scoreList = [80,75,70,65,60,55,50,0]
    gradeWeight = [4,3.5,3,2.5,2,1.5,1,0]
    for n in range(len(gradeList)):
        if score >= (scoreList[n]):
            return (gradeList[n])

def grade_weight(grade):
    gradeList = ['A','B+','B','C+','C','D+','D','F']
    gradeWeight = [4,3.5,3,2.5,2,1.5,1,0]
    for n in range(len(gradeList)):
        if grade == gradeList[n]:
            return (gradeWeight[n])

print (">> Program Calculation Grade <<")
print('')

Subject = []
Score = []
Grade = []
GradeWeight = []
Credit = []
Point = []


table = ''
subjectCount = int(input("Enter how many subject enroll in: "))

count = 1
```

```
for n in range(subjectCount):
    name = input(f'Enter subject name({count}): ')
    score = float(input(f'Enter score({count}): '))
    credit = int(input(f'Enter credit({count}): '))
    grade = grade_char(score)
    weight = grade_weight(grade)
    count += 1

    #add to List
    Subject.append(name)
    Score.append(score)
    Grade.append(grade)
    GradeWeight.append(weight)
    Credit.append(credit)
    Point.append(weight*credit)

sumCredit = sum(Credit)
sumPoint = sum(Point)
gpa = sumPoint/sumCredit

# Table Maker
count = 1
for n in range(len(Subject)):
    table += f'{str(count).center(7)}{" "*3}'
    table += f'{Subject[n]}{" "*(25-len(Subject[n]))}'
    table += f'{str(Score[n]).center(10)}'
    table += f'{Grade[n].center(10)}'
    table += f'{str(Credit[n]).center(10)}'
    table += f'{str(Point[n]).center(10)}'
    table += '\n'
    count += 1

print ('Grade Point'.center(75))
print ('='*75)
print (f'Sub No.   Subject Name{" "*13}{"Mark".center(10)}{"Grade".center(10)}{"Credits".center(10)}{"Points".center(10)}')
print ('='*75)
print (table)
print ('='*75)
print (f'{" "*36}{"Total".center(10)}{" "*10}{str(sumCredit).center(10)}{str(sumPoint).center(10)}')
print ('')
print (f'Grade Point Average(GPA) : {gpa:.2f}')
```