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Task 1

MAIN()

Determine the number of passengers at entrance,

P = number of passengers at entrance,

DOWHILE P >= 1

Call: GetPassengerName(1),

Call: DatabaseCheck,

ENDDO

END

GetPassengerName(x)

IF x = 1 THEN

PRINT “Enter your name”,

GET name,

ENDIF

Return (name)

END

DatabaseCheck()

Turn on camera,

Passenger_photo = capture photo with camera,

Read eye from Passenger_photo,

Read hair from Passenger_photo,

Open database www.metro.com.au/passengers.csv,

DB = database photo,

IF eye AND hair = DB THEN

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            Call: FeeDeduction,
            Print “Have a safe journey”,
            Open Gate
        ELSE
            Print “Passenger Information Not Found”
        ENDIF
END

FeeDeduction()
    Initialise ACC to cash in their account,
    ACC = Cash in their account,
    PRINT “Choose your destination.”,
    Initialise X to prompt passenger to choose distance of their trip,
    X = chosen distance,
    Initialise Y to remaining cash in account,
    Y = remaining cash in account
    CASE X
        X less than 10:
            Y = ACC – 3,
            Print “Fee is $3”,
            Display Y
        X less than equal to 10 and more than 80:
            Y = ACC – 10,
            Print “Fee is $10”,
            Display Y
        X less than equal to 80 and more than 130:
            Y = ACC – 15,
            Print “Fee is $15”,
            Display Y
        Other
```

Print “Error”

ENDCASE

END

Defining Diagram

Input	Processing	Output
Camera	Turn on camera	Captured photo
	Capture picture of passenger	
Distance (X)	Prompt users to choose distance	Chosen distance
Cash in Account (ACC)	Deduct cash in account according to chosen distance	Remaining Cash in Account (Y)
	Display remaining cash in account	Deducted fee message
	Display deducted fee message	
Eye	Read Eye	
Hair	Read Hair	
Database	Open Database	Gate Opened
	Check if Eye and hair matches with any photo in database	Error / Accepted Message
	Display error or accepted message	

Task 2

Main()

Determine the number of passengers at entrance,

P = number of passengers at entrance,

DOWHILE P >= 1

Call: GetPassengersName(1),

Call: DatabaseCheck

Call: WaitingTine

Call: PassengersInTrain

Determine movement in between doors with sensors,

IF no movement between doors for 30 seconds THEN

Direct sensors to close doors

ELSE

```
                    Direct sensors to keep the doors open
                ENDIF

            Determine if passenger destination is reached
                IF destination reached THEN
                    Then direct sensors to open doors
                ELSE
                    Direct sensors to keep the doors close
                ENDIF

            Call: ExitCheck
        ENDDO
END()

GetPassengerName(x)
        IF x = 1 THEN
            PRINT “Enter your name”
            GET name
        ENDIF
        Return (name)
END

DatabaseCheck()
        Turn on camera,
        Passenger_photo = capture photo with camera,
        Read eye from Passenger_photo,
        Read hair from Passenger_photo,
        Open database www.metro.com.au/passengers.csv
        DB = database photo
            IF eye AND hair = DB THEN
                Call: FeeDeduction,
                Print “Have a safe journey”,
```

```
            Open Gate
        ELSE
            Print “Passenger Information Not Found”
        ENDIF
END

FeeDeduction()
    Initialise ACC to cash in their account,
    ACC = Cash in their account,
    PRINT “Choose your destination.”
    Initialise X to prompt passenger to choose distance of their trip,
    X = chosen distance,
    Initialise Y to remaining cash in account,
    Y = remaining cash in account

    CASE X
        X less than 10:
            Y = ACC – 3 ,
            Print “Fee is $3”,
            Display Y
        X less than equal to 10 and more than 80:
             Y = ACC – 10,
             Print “Fee is $10”,
             Display Y
        X less than equal to 80 and more than 130:
             Y = ACC – 15,
             Print “Fee is $15”
             Display Y
        Other
            Print “Error”
```

```
        ENDCASE
END

WaitingTime()
                Read number of passengers registered at entry,
                N = number of passengers registered at entry
                Read current time,
                W = waiting time at station in minutes
                Set waiting time for time sensors,
                        IF the N at the same period of time is high THEN
                                Set W at 15
                        ELSE
                                Set W at 5
                        ENDIF
END

PassengersInTrain()
        Counts the number of passengers using sensors,
        E = number of passengers entering,
        L = number of passengers leaving,
        T = number of passengers in the train,
        R = remaining passengers in train
        F = speed of train to fast
        S = speed of train to slow
        Compute T - L = R
                IF R in train are more than 1000 THEN
                        Display warning message on monitors for passengers to leave the train
                ELSEIF R in the train are more than 500 and less than equal to 1000
                        Display normal settings on monitors
                        Set S
```

```
            Else
                Display normal settings on monitors
                Set F
            ENDIF

        Determine the distance of the destination from the train,
                IF distance is near THEN
                    Set S
                ELSE
                    Set F
                ENDIF
END

ExitCheck()
        Turn on camera,
        Passenger_photo = capture photo with camera,
        Read eye from Passenger_photo,
        Read hair from Passenger_photo,
        X = chosen distance,
        DB = database photo,
            IF (eye AND hair = DB AND X = Distance Travelled) THEN
                Print “Have a Good Day”
                Open Gate,
            ELSE
                Print “Trip and deduction does not match”
            ENDIF
END
```