Questions Submission

Amy Law – 18001399

1. Express the following algorithm design in flowchart form.

**STRUCTURED ENGLISH**

money := 20 (Step 1)

hotDogCost := 7.99 (Step 2)

friesCost := 5.99 (Step 3)

drinkCost := 3.99 (Step 4)

if (hotDogCost < friesCost) & (hotDogCost < drinkCost) then

(Step 5)

begin

lowestPricedItem := hotDogCost (Step 6)

end

else if (friesCost < hotDogCost) & (friesCost < drinkCost) then (Step 7)

begin

lowestPricedItem := friesCost (Step 8)

end

else

lowestPricedItem := drinkCost (Step 9)

end

while (Money >= lowestPricedItem) (Step 10)

begin

purchaseHotDog()

money := Money – hotDogCost (Step 11)

end

if (money > friesCost) then (Step 12)

begin

purchaseFries()

money := Money – friesCost (Step 13)

end

if (money > drinkCost) then (Step 14)

begin

purchaseDrink()

money := money – drinkCost (Step 15)

end

display(money) (Step 16)

**ANSWER**



1. Create a trace table for the above structured English.

**ANSWER**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Step | Money | Hotdog  Cost | friesCost | Drink  Cost | hotDogCost  < friesCost & hotDogCost< drinkCost | friesCost < hotDogCost  & friesCost < drinkCost | Lowest  Priced  Item | Money>  lowest Priced Item | Money > friesCost | Money > DrinkCost |
| 1 | 20 |  |  |  |  |  |  |  |  |  |
| 2 |  | 7.99 |  |  |  |  |  |  |  |  |
| 3 |  |  | 5.99 |  |  |  |  |  |  |  |
| 4 |  |  |  | 3.99 |  |  |  |  |  |  |
| 5 |  |  |  |  | FALSE |  |  |  |  |  |
| 7 |  |  |  |  |  | FALSE |  |  |  |  |
| 9 |  |  |  |  |  |  | drinkCost |  |  |  |
| 10 |  |  |  |  |  |  |  | TRUE |  |  |
| 11 | 12.01 |  |  |  |  |  |  |  |  |  |
| 12 |  |  |  |  |  |  |  |  | TRUE |  |
| 13 | 6.02 |  |  |  |  |  |  |  |  |  |
| 14 |  |  |  |  |  |  |  |  |  | TRUE |
| 15 | 2.03 |  |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  | FALSE |  |  |

1. Express the following as a selection in Structured English.

|  |  |
| --- | --- |
| LECTURER | ROOM |
| N.BUCKLEY | FML408 |
| D.REID | FML412 |
| E.SECCO | FML410 |

**ANSWER**

getLecturer()

if (lecturer = “N.BUCKLEY”) then

begin

room := “FML408”

end

else if (lecturer = “D.REID”) then

begin

room := “FML412”

end

else

room := “FML410”

end

1. Express the following as an iteration in Structured English.

Buy six items and place into a shopping bag.

**ANSWER**

items := 6

itemsBought := 0

while (items > 0)

begin

buyItem()

putItemInShoppingBag()

itemsBought = itemsBought + 1

items := items – 1

end

1. Express the following instructions as Structured English.

Turn gas on and heat up frying pan and get 2 eggs out of the fridge. Get a bowl and crack each egg in to the bowl and whisk until smooth. Once frying pan is warm, add oil to pan. Then pour eggs into frying pan. Cook until golden and flip over and continue until that side is golden. Once both sides are golden, serve on a plate.

**ANSWER**

gasOn := true

eggs := 2

side := 0

openFridge()

getEggs()

getBowl()

while (eggs > 0)

begin

crackEggIntoBowl()

whisk()

if (eggs smooth = true) then

begin

whisking := false

end

eggs := eggs – 1

end

if (fryingPanWarm = true) then

begin

addOil()

pourEggs()

while side < 2

begin

if (sideGolden = true) then

begin

flip()

side := side + 1

end

end

end

serve()