COMP101 LAB10

# Extended Requirements

Create a program which when input the broadband use, weekend and evening calls and the daytime calls and outputs the costs associated and the profit made across 3 accounts with perks and evaluates the cheapest in accordance with the data in the table below

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bronze | Silver | Gold |
| Package Cost /month | £36.00 | £46.00 | £61.00 |
| Daytime phone cost /min | 12p | 12p | 0p |
| Evening/Weekend phone cost /min | 5p | 0p | 0p |
| Number of TV Channels | 60 | 130 | 230 |
| Included Broadband in Mb | 500 | 1000 | 1520 |
| Broadband cost /Mb over the included amount | 2p | 1p | 1p |
| Profit per Daytime call /min | 5p | 5p | -3p |
| Profit per evening call /min | 2p | -1p | -1p |
| Profit per Mb over limit | 1p | 0p | 0p |
| Package Profit | £15 | £20 | £25 |
| Package Perks | NA | Spotify | Spotify, Music on demand |

# Analysis and Design

My analysis was that I would need 5 classes, a superclass (StandardUser) and 3 SubClasses (BronzeAccount, SilverAccount and GoldAccount) and an applicatication class (AccountUser).

The subclasses will inherit the majority of their methods from the Superclass and will predominantly be used to hold the pricing profit and features of the different account types

## Pseudo Code

IntInput()

INT Value = -1

WHILE Value < 0

Value = INPUT INT

IF Value < 0

OUTPUT The number must be greater than or equal to to minValue

OUTPUT enter a different number:

ELSE

BREAK

RETURN Value

CalculateProfit()

TotalProfit = Profit

Daytime = DaytimeProfit\*DaytimeCalls

Evening = EveningProfit\*EveningCalls

TotalProfit += Daytime+Evening

if BroadbandUse > BroadbandIncluded

TotalProfit += BroadbandProfit\*(BroadbandUse-BroadbandIncluded)

return TotalProfit

|  |
| --- |
| BronzeAccount extends Standard Account |
|  |
| BronzeAccount(int int int) |

|  |
| --- |
| StandardAccount (Abstract) |
| PackageName: String  PackageCost: double  DaytimeCallPrice: double  EveningCallPrice: double  BroadbandProfit: double  DaytimeCalls: integer  EveningCalls: integer  BroadbandUse: integer  NumberOfChannels: integer  BroadbandInclued: integer  Spotify: boolean  MusicOnDemand: boolean |
| CalculateProfit(): double  DaytimeCallCost(): double  EveningCallCost(): double  BroadbandUseCost(): double  PrintCosts(): void  PrintProfit(): void |

## Class Diagram

|  |
| --- |
| AccountUser |
|  |
| main(string[])  IntInput(): int |

|  |
| --- |
| SilverAccount extends StandardAccount |
|  |
| SilverAccount(int int int) |

|  |
| --- |
| GoldAccount extends Standard Account |
|  |
| GoldAccount(int int int) |

# Testing

|  |  |  |  |
| --- | --- | --- | --- |
| Daytime Minutes | Evening/Weekend Minutes | DataUse | As Expected |
| 0 | 0 | 0 | yes |
| 100 | 0 | 0 | yes |
| 0 | 100 | 0 | yes |
| 100 | 100 | 0 | yes |
| 0 | 0 | 100 | yes |
| 500 | 500 | 505 | yes |
| 100 | 100 | 1005 | yes |
| 100 | 100 | 1525 | Yes |

## Evidence

## C:\Users\BenHa\OneDrive\Documents\JAVA\Lab 9>java AccountUserExt

## Please Enter the ammount of daytime telephone minutes : 0

## Please Enter the ammount of evening and weekend telephone minutes : 0

## Please Enter the ammount of total Broadband Use : 0

## Account Summary for Bronze Account

## Package Cost : 36.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.05/Min

## Number of Channels: 60

## Broadband included: 500Mb

## Total daytime call cost: 0.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 36.00

## Account Summary for Silver Account

## Package Cost : 46.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 130

## Broadband included: 1000Mb

## Total daytime call cost: 0.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 46.00

## Package Includes Spotify Account

## Account Summary for Gold Account

## Package Cost : 61.00

## Cost of daytime calls: 0.00/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 230

## Broadband included: 1520Mb

## Total daytime call cost: 0.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 61.00

## Package Includes Spotify Account

## Package Includes Music On Demand

## The profit made on the Bronze package is: 15.00

## The profit made on the Silver package is: 20.00

## The profit made on the Gold package is: 25.00

## The Bronze account is the cheapest

## C:\Users\BenHa\OneDrive\Documents\JAVA\Lab 9>java AccountUserExt

## Please Enter the ammount of daytime telephone minutes : 100

## Please Enter the ammount of evening and weekend telephone minutes : 0

## Please Enter the ammount of total Broadband Use : 0

## Account Summary for Bronze Account

## Package Cost : 36.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.05/Min

## Number of Channels: 60

## Broadband included: 500Mb

## Total daytime call cost: 12.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 48.00

## Account Summary for Silver Account

## Package Cost : 46.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 130

## Broadband included: 1000Mb

## Total daytime call cost: 12.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 58.00

## Package Includes Spotify Account

## Account Summary for Gold Account

## Package Cost : 61.00

## Cost of daytime calls: 0.00/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 230

## Broadband included: 1520Mb

## Total daytime call cost: 0.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 61.00

## Package Includes Spotify Account

## Package Includes Music On Demand

## The profit made on the Bronze package is: 20.00

## The profit made on the Silver package is: 25.00

## The profit made on the Gold package is: 22.00

## The Bronze account is the cheapest

## C:\Users\BenHa\OneDrive\Documents\JAVA\Lab 9>java AccountUserExt

## Please Enter the ammount of daytime telephone minutes : 0

## Please Enter the ammount of evening and weekend telephone minutes : 100

## Please Enter the ammount of total Broadband Use : 0

## Account Summary for Bronze Account

## Package Cost : 36.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.05/Min

## Number of Channels: 60

## Broadband included: 500Mb

## Total daytime call cost: 0.00

## Total evening/Weekend call cost: 5.00

## Total (extra) broadband cost: 0.00

## Total cost: 41.00

## Account Summary for Silver Account

## Package Cost : 46.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 130

## Broadband included: 1000Mb

## Total daytime call cost: 0.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 46.00

## Package Includes Spotify Account

## Account Summary for Gold Account

## Package Cost : 61.00

## Cost of daytime calls: 0.00/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 230

## Broadband included: 1520Mb

## Total daytime call cost: 0.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 61.00

## Package Includes Spotify Account

## Package Includes Music On Demand

## The profit made on the Bronze package is: 17.00

## The profit made on the Silver package is: 19.00

## The profit made on the Gold package is: 24.00

## The Bronze account is the cheapest

## C:\Users\BenHa\OneDrive\Documents\JAVA\Lab 9>java AccountUserExt

## Please Enter the ammount of daytime telephone minutes : 100

## Please Enter the ammount of evening and weekend telephone minutes : 100

## Please Enter the ammount of total Broadband Use : 0

## Account Summary for Bronze Account

## Package Cost : 36.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.05/Min

## Number of Channels: 60

## Broadband included: 500Mb

## Total daytime call cost: 12.00

## Total evening/Weekend call cost: 5.00

## Total (extra) broadband cost: 0.00

## Total cost: 53.00

## Account Summary for Silver Account

## Package Cost : 46.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 130

## Broadband included: 1000Mb

## Total daytime call cost: 12.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 58.00

## Package Includes Spotify Account

## Account Summary for Gold Account

## Package Cost : 61.00

## Cost of daytime calls: 0.00/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 230

## Broadband included: 1520Mb

## Total daytime call cost: 0.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 61.00

## Package Includes Spotify Account

## Package Includes Music On Demand

## The profit made on the Bronze package is: 22.00

## The profit made on the Silver package is: 24.00

## The profit made on the Gold package is: 21.00

## The Bronze account is the cheapest

## C:\Users\BenHa\OneDrive\Documents\JAVA\Lab 9>java AccountUserExt

## Please Enter the ammount of daytime telephone minutes : 0

## Please Enter the ammount of evening and weekend telephone minutes : 0

## Please Enter the ammount of total Broadband Use : 100

## Account Summary for Bronze Account

## Package Cost : 36.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.05/Min

## Number of Channels: 60

## Broadband included: 500Mb

## Total daytime call cost: 0.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 36.00

## Account Summary for Silver Account

## Package Cost : 46.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 130

## Broadband included: 1000Mb

## Total daytime call cost: 0.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 46.00

## Package Includes Spotify Account

## Account Summary for Gold Account

## Package Cost : 61.00

## Cost of daytime calls: 0.00/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 230

## Broadband included: 1520Mb

## Total daytime call cost: 0.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 61.00

## Package Includes Spotify Account

## Package Includes Music On Demand

## The profit made on the Bronze package is: 15.00

## The profit made on the Silver package is: 20.00

## The profit made on the Gold package is: 25.00

## The Bronze account is the cheapest

## C:\Users\BenHa\OneDrive\Documents\JAVA\Lab 9>java AccountUserExt

## Please Enter the ammount of daytime telephone minutes : 500

## Please Enter the ammount of evening and weekend telephone minutes : 500

## Please Enter the ammount of total Broadband Use : 505

## Account Summary for Bronze Account

## Package Cost : 36.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.05/Min

## Number of Channels: 60

## Broadband included: 500Mb

## Total daytime call cost: 60.00

## Total evening/Weekend call cost: 25.00

## Total (extra) broadband cost: 0.10

## Total cost: 121.10

## Account Summary for Silver Account

## Package Cost : 46.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 130

## Broadband included: 1000Mb

## Total daytime call cost: 60.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 106.00

## Package Includes Spotify Account

## Account Summary for Gold Account

## Package Cost : 61.00

## Cost of daytime calls: 0.00/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 230

## Broadband included: 1520Mb

## Total daytime call cost: 0.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 61.00

## Package Includes Spotify Account

## Package Includes Music On Demand

## The profit made on the Bronze package is: 50.05

## The profit made on the Silver package is: 40.00

## The profit made on the Gold package is: 5.00

## The Gold account is the cheapest

## C:\Users\BenHa\OneDrive\Documents\JAVA\Lab 9>java AccountUserExt

## Please Enter the ammount of daytime telephone minutes : 100

## Please Enter the ammount of evening and weekend telephone minutes : 100

## Please Enter the ammount of total Broadband Use : 1005

## Account Summary for Bronze Account

## Package Cost : 36.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.05/Min

## Number of Channels: 60

## Broadband included: 500Mb

## Total daytime call cost: 12.00

## Total evening/Weekend call cost: 5.00

## Total (extra) broadband cost: 10.10

## Total cost: 63.10

## Account Summary for Silver Account

## Package Cost : 46.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 130

## Broadband included: 1000Mb

## Total daytime call cost: 12.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.05

## Total cost: 58.05

## Package Includes Spotify Account

## Account Summary for Gold Account

## Package Cost : 61.00

## Cost of daytime calls: 0.00/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 230

## Broadband included: 1520Mb

## Total daytime call cost: 0.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.00

## Total cost: 61.00

## Package Includes Spotify Account

## Package Includes Music On Demand

## The profit made on the Bronze package is: 27.05

## The profit made on the Silver package is: 24.00

## The profit made on the Gold package is: 21.00

## The Silver account is the cheapest

## C:\Users\BenHa\OneDrive\Documents\JAVA\Lab 9>java AccountUserExt

## Please Enter the ammount of daytime telephone minutes : 100

## Please Enter the ammount of evening and weekend telephone minutes : 100

## Please Enter the ammount of total Broadband Use : 1525

## Account Summary for Bronze Account

## Package Cost : 36.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.05/Min

## Number of Channels: 60

## Broadband included: 500Mb

## Total daytime call cost: 12.00

## Total evening/Weekend call cost: 5.00

## Total (extra) broadband cost: 20.50

## Total cost: 73.50

## Account Summary for Silver Account

## Package Cost : 46.00

## Cost of daytime calls: 0.12/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 130

## Broadband included: 1000Mb

## Total daytime call cost: 12.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 5.25

## Total cost: 63.25

## Package Includes Spotify Account

## Account Summary for Gold Account

## Package Cost : 61.00

## Cost of daytime calls: 0.00/Min

## Cost of evening and weekend calls: 0.00/Min

## Number of Channels: 230

## Broadband included: 1520Mb

## Total daytime call cost: 0.00

## Total evening/Weekend call cost: 0.00

## Total (extra) broadband cost: 0.05

## Total cost: 61.05

## Package Includes Spotify Account

## Package Includes Music On Demand

## The profit made on the Bronze package is: 32.25

## The profit made on the Silver package is: 24.00

## The profit made on the Gold package is: 21.00

The Gold account is the cheapest