**Tutorial 3 Question 4**

Planning document

**Question**

For an employee, enter the data of his/her name, hours, and rate of pay. Calculate the gross pay, tax and nett pay, and output them. Tax is at 25% on the first $100 of grossPay, with the remainder at 33%.

**Input**

|  |  |  |
| --- | --- | --- |
| *variableName* | *Type* | *How* |
| name | text | sprite – user response |
| hoursWorked | number (float) | sprite – user response |
| rateOfPay | number (float) | sprite – user response |

**Constants**

taxLimit 🡨 100

firstTaxRate 🡨 25%

secondTaxRate 🡨 33%

**Output**

|  |  |  |
| --- | --- | --- |
| *variableName* | *format* | *How* |
| grossPay | currency 2 decimal places | sprite – on screen |
| taxPaid | currency 2 decimal places | sprite – on screen |
| netPay | currency 2 decimal places | sprite – on screen |

**Processing/calculations**

grossPay 🡨 hoursWorked \* rateOfPay

if grossPay <or= taxLimit

taxPaid 🡨 grossPay \* firstTaxRate

else

firstTax 🡨 taxLimit \* firstTaxRate

difference 🡨 grossPay - taxLimit

secondTax 🡨 difference \* secondTaxRate

taxPaid 🡨 firstTax + secondTax

netPay 🡨 grossPay – taxPaid

**Testdata**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *name* | *hoursWorked* | *rateOfPay* | *grossPay* | *taxPaid* | *netPay* |
| Garth | 20 | 18.50 |  |  |  |
| Mandy | 5.5 | 12.75 |  |  |  |
| Samson | 10 | 10 |  |  |  |

**Pseudocode**

Enter the data

Process the data - calculations

Display the results

**Testing plan**

Version1 - Create variables and enter the data for constants and from user and test code with test data. Document the process

Version 2 - add code for processing and test code with test data. Note you may have to create further variables. Document the process.

Version 3 - add code to display the results and test code with test data. Document the process

Version 4 - improve display of results of necessary…see refinement of solution with extra threads and events

**Sprites**

|  |  |  |  |
| --- | --- | --- | --- |
| Input Sprite | | | |
| *Costume* | People - Sam | *Name* | Sam |
| *Thread1* | | | |
| *Event signal* | | *Event handling* | |
| Green flag clicked | | Ask user for name  Ask user for hoursworked  Ask user for rate of pay  Calculate grossPay, taxPaid, netPay  Display results with suitable comments | |

**Solution with enhancements**

**Sprites**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Input Sprite | | | | |
| *Costume* | People - Sam | | *Name* | Sam |
| *Thread1* | | | | |
| *Event signal* | | *Event handling* | | |
| Green flag clicked | | Set the stage with suitable background  Position sprite  Play drum roll  ***Ask user for name***  Change colour and position of sprite  Play cymbal  ***Ask user for hoursworked***  Change colour and position of sprite  Play didgeridoo  ***Ask user for rate of pay***  Prompt user to press C for calculation | | |
| *Thread2* | | | | |
| *Event signal* | | *Event handling* | | |
| User presses C key | | Play music for 2 seconds  Display sprite thinking for 2 seconds  ***Calculate grossPay, taxPaid, netPay***  Prompt user to press spacebar for results | | |
| *Thread3* | | | | |
| *Event signal* | | *Event handling* | | |
| User presses space bar | | Set stage background  Set colour and position of sprite  Suitable music introduction  ***Display results with suitable screen comments*** | | |