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**STIA1123 PROGRAMMING 2**

**Exercise**

**TASK 1**

The income tax of a person is calculated based on his/her taxable income. The taxable income is calculated by subtracting his/her tax deduction amount from his/her total income:

Taxable income = Total income - Tax deduction amount

Then, the income tax amount is calculated as follows:

Income tax amount = Taxable income \* Tax rate

The tax rate is determined based on the person’s marital status and his/her taxable income amount, as shown below:

|  |  |  |
| --- | --- | --- |
| **Taxable income** | | **Tax Rate** |
| **Single** | **Married** |
| From 0 to RM21,000 | From 0 to RM35,000 | 10% |
| From RM21,001 to RM51,000 | From RM35,001 to RM86,000 | 20% |
| From RM51,001 and above | From RM86,001 and above | 35% |

You are required to write a tax calculator application to calculate the tax amount to be paid by a person. The application uses three classes as shown in the UML diagram below:











The class named TaxCalculator uses theTaxclass to create an array of Tax objects for the tax calculation. For this, the application requires **FIVE (5) input** which are: name, IC number, total income, tax deduction amount and the marital status.

The TaxCalculator class consists main method to perform the following operations:

1. to read all of the inputs
2. Perform tax calculation by invoking the calculateTax() method of the Tax object.
3. Lastly, it will display the taxable income and the tax amount.

**TASK 2**

Given the following incomplete code, answer the following questions.



1. Draw a UML class diagram representing the code.
2. Create class named HousePaymentCalculator uses theHouseclass to create an array of House objects for the calculation.

The HousePaymentCalculator class consists main() method to perform the following operations:

* to read all of the inputs
* Perform calculation by invoking the calcMonthlyPayment()method of the House object.
* Lastly, display the details.

**TASK 3**

Based on the following scenario, answer **ALL** of the following questions:



1. Define a PressureCooker class. Provide the necessary attributes, constructor(s) and methods. The PressureCooker class also has a method named calculatePrice. This method receives **ONE (1)** parameter: an int type variable named quantity. The method returns price, which is of type double.

1. Create PressureCookerDemo class that contains a main method. In main method, create an array type PressureCooker and store the PressureCooker objects. Next, call calculatePrice method and display details of each object.