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Vacation Work Domain – Tax Calculator

Intro

- Tax is the primary means as to how Governments raise money for the running of the country

- As the citizens all use "common" services of the country – they have to pay for it (e.g. roads / health / education / etc)

- Some countries don't pay tax (to my knowledge) – e.g. some countries in the Middle East (do some research)

- Do some research as to rates of taxes in different countries (first world / third world / etc)

- In SA, tax year runs from Mar - Feb

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Different kinds of Tax

- PAYE (Pay as you Earn) – most common tax
- Company tax (fixed at 28%) – typically highest tax revenue together with PAYE
- VAT
- Capital Gains Tax
- Fuel levies
- Customs Duty
- Sin tax (cigarettes, alcohol, etc)
- Other…

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Some taxation figures…

- In 2021/2022 tax year- govt collected R1, 700 Billion Rands in tax revenue

- @See https://en.wikipedia.org/wiki/Taxation_in_South_Africa for some very interesting stats

- @See also info at this link re : number of taxpayers (https://en.wikipedia.org/wiki/Taxation_in_South_Africa#Number_of_taxpayers)

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Our tax calculator

- Will only focus on the individual (PAYE)
- Is not comprehensive but will give you a good sense of how tax for individuals work
- This will be valuable to you in your future career

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Individual Tax

- The key is to determine Taxable Income – this is relatively the more complex part (and is fundamentally the big part of taxation law)

- Once we have Taxable Income – it is pretty easy:
  - We apply the tax tables to determine Tax Payable
  - We apply the Medical Tax Credits
  - We subtract the Primary Rebate (there are further Rebates if you are older)
  - The result is your Nett Tax Payable

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Taxable Income (Individual)

- Every income and expense affects Taxable Income in potentially a different way – this is the basis of many of the tax rules / law

- In simple terms:
  - Taxable income = Total income – allowed taxable expenses

- Some expenses will not have any impact at all (i.e. they will not be allowed as a taxable expense)

- Almost all income contributes to taxable income

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Individual Tax - Example

- Best via an example – see tax spreadsheet (comprehensive and specifically for our vac work)

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Project: Individual Tax Calculator

- To develop a basic tax calculator as per the example in spreadsheet : tax_example_comprehensive_202008_v2

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Project: Phase 1 – Basic Tax Calculator

- Basic tax calculator in standard JSE
  - Design with basic OO (introduce TaxPayer as part of Phase 1)
  - Write tests - test after or (test driven – if you brave)
  - Write good code with coding/naming standards
  - Make sure classes / variables / methods are correctly spelt
  - No database
- Evolve your calculator over a few days – write small pieces and grow it
  - Include a Basic command line UI
- Timeline : 5 days

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Project: Phase 2 – Add Database Functionality

- Extend your Tax Calculator as follows:
  - Design the database tables (make sure every table has a unique business identifier / primary key – DO NOT USE technical id's)
  - Evolve the code to write relevant domain objects to the DB
  - Use JDBC 4.2+
  - Use PostgreSQL 10+
  - If you are writing tests – add more tests to make sure your persistence (writing to db) is working OK
- Create a more comprehensive command line UI
- Timeline: 5 – 8 days

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Project: Phase 3 - JEE

- Introduce the concept of a TaxPayer (already done in Phase1/2)

- Cater for only 1 Tax Year (current tax year)

- Allow following stories:
  - Capture tax tables for the tax year
  - Capture basic exemptions / allowances / incl rates for each type of tax benefit / tax expense for each tax year
  - Capture primary rebate (for the tax year)
  - Add TaxPayer (Taxpayers must be >= 18 years old)
  - Do tax return for TaxPayer for the current tax year
  - Save / edit tax return for TaxPayer for the current tax year

- Timeline: balance of Vac Work (typically 8 days)

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Project: Phase 2/3 – software / principles

- Basic tax calculator in standard JEE
  - Servlets 4.0 (JEE 8 – JSR 369)
  - JSPs 2.3 (JEE 8 – JSR 245)
  - JDBC V4.2+
  - Tomcat (V9.0.36+) – JEE 8
  - Database : Postgres 10+
- Basic layers : Controllers / Services / Resources
- Transaction management by hand (off the Connection)
- Ant for build

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Questions…??