Cover page

Assignment

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Class Tuesday, 9:00 AM

Introduction

I have developed a tool specialized in birthday and numerology. This application is capable of calculating a lucky number from given date and a lucky number can be translated to its respective lucky animal. It is useful for telling fortune and whether two persons are compatible with the use of lucky number and animal. This tool is also able to identify which generation a person belong to by checking their birthday against generation map. It has a command line interface that allows users to interact with the program easily.

This markdown document is exported to PDF using Visual Studio Code's **Markdown PDF** Extension, which may not look as desired.

Module descriptions

Module calculator

```
Submodule calculate_lucky_number
Imports: birthday (Date)
Exports: lucky_number (integer)

Calculates lucky number by receiving birthday from argument. Once calculated, the
lucky number is output through return value.
```

```
Submodule get_lucky_animal
Imports: lucky_number (integer)
Exports: lucky_animal (string)

Calculates lucky animal by receiving a lucky number as an argument and comparing
it to a dictionary of lucky number to lucky animals. It outputs by returning the
value.
```

```
Submodule get_generation
Imports: year (integer)
Exports: generation (string)
```

```
Calculates generation of a birthday by receiving year as an argument and comparing
it to a set of conditions. It returns generation as output.
```

Module logic

```
Submodule same_luck
Imports: birthday1 (Date), birthday2 (Date)
Exports: result (boolean)

Checks if two dates have the same lucky number and lucky animal by receiving
birthday1 and birthday2 as arguments, then call calculate_lucky_number for each
birthday and compare the results. It returns True if both have the same lucky
number, and False if not.
```

```
Submodule is_master_number
Imports: lucky_number (integer)
Exports: result (boolean)

Checks if a lucky number is a master number by receiving lucky number as argument
and check if the number is in the list of master numbers of not. If it is in the
list, return True. If it is not, return False.
```

Module date

```
Class Date
Imports: None

Stores day, month, year in integer format.
```

```
Method prompt_date
Imports: None
Exports: None

Prompts for user input for day, month, and year, validifies if they are in correct
formats and calls format_month to format month if month is not a digit. Finally,
it modifies class members day, month, year with new values.
```

```
Method format_month
Imports: None
Exports: month (integer)
```

```
Formats month to integer by using a dictionary that maps month strings to integers
and return the integer.
```

Explanation

I have designed so that each submodule satisfies each requirement without doing too many things at once in the same submodule. Each module only contains submodule with related functionalities for scalability.

Assumptions

It is assumed that, in `get_generation()`, `year` is passed from a `Date()` object, meaning the input type is automatically validated. This means that in order to use `get_generation()`, you need to create a `Date()` object and call `prompt_date()` to take in inputs.

Modularity

Instructions

The code can be run by running `python3 main.py`. The user interface will appear, prompting to choose a scenario to run.

- Scenario A queries your birthday and outputs your generation, lucky number, animal, and check whether your lucky number is a master number or not.
- Scenario B queries two birthdays and outputs whether they have the same lucky number and animal or not.
- Scenario C queries your birthday and outputs the generation you belong to.

If your scenario selection input is invalid, it will prompt until you enter a correct input. You need to rerun the code if you would like to try another scenario.

```
lyns0@FedoraKDE:~/projects/uni/isen1000/Pispol_Komes90035701_ISErepo/code$ python main.py

                        Which functionality would you like to use?
                        A: Find your lucky number, lucky animal,
                        and whether your lucky number is a master number or not.
                        B: Check if two birthdays have the same lucky number and animal.
                        C: Check which generation you are in.

Functionality A/B/C> A
Please enter your birthday.
Input day (integer)> 10
Input month (integer or string)> March
Input year (string)> 2006

You belong to Generation Z.

Your lucky number is 3,
and animal is Elephant.
```

```
lyns0@FedoraKDE:~/projects/uni/isen1000/Pispol_Komes90035701_ISErepo/code$ python main.py

                       Which functionality would you like to use?
                       A: Find your lucky number, lucky animal,
                       and whether your lucky number is a master number or not.
                       B: Check if two birthdays have the same lucky number and animal.
                       C: Check which generation you are in.

Functionality A/B/C> D
Your input is invalid, please try again.
Functionality A/B/C> C
Please enter your birthday.
Input day (integer)> 14
Input month (integer or string)> 20
Input year (string)> 2006

Error: Month value must be from 1 to 12 inclusive.

Please try again...
Functionality A/B/C> C
Please enter your birthday.
Input day (integer)> 20
Input month (integer or string)> 12
Input year (string)> 1901

You belong to Silent Generation.
```

```
lyns0@FedoraKDE:~/projects/uni/isen1000/Pispol_Komes90035701_ISErepo/code$ python main.py

                       Which functionality would you like to use?
                       A: Find your lucky number, lucky animal,
                       and whether your lucky number is a master number or not.
                       B: Check if two birthdays have the same lucky number and animal.
                       C: Check which generation you are in.

Functionality A/B/C> D
Your input is invalid, please try again.
Functionality A/B/C> C
Please enter your birthday.
Input day (integer)> 14
Input month (integer or string)> 20
Input year (string)> 2006

Error: Month value must be from 1 to 12 inclusive.

Please try again...
Functionality A/B/C> C
Please enter your birthday.
Input day (integer)> 20
Input month (integer or string)> 12
Input year (string)> 1901

You belong to Silent Generation.
```

Modularity Checklist

No.	Question	Yes/No	Where
	Coupling		
1	More than 6 function parameters	No	
2	Global variables	No	
3	Control flags	No	
	Cohesion		
4	Sequential tasks	No	
5	Different kinds of data	No	
	Redundancy		
6	Duplication	No	
7	Supersets	No	

In the code shows that each submodule only does what it is meant to do, which shows separation of concern. However, a submodule can also call other modules to help complete its task to avoid Redundancy when two submodule has a similar sub-task. For example, `calculate_lucky_number()` makes use `is_master_number()` as a part of its calculation while `is_master_number()` can also be used elsewhere, which is user interface in this case. Each module is designed with modularity in mind from the beginning to avoid too many refactoring.

Black-box test cases

Module calculator

Submodule calculate_lucky_number

Equivalence Partitioning

No.	Category	Input birthday	Expected Output lucky_number
1	Not master number	= Date(10, 3, 2006)	3
2	Master number	= Date(6, 6, 2017)	22

Submodule get_lucky_animal

Equivalence Partitioning

No.	Category lucky_number	Input lucky_number	Expected Output lucky_animal

No.	Category lucky_number	Input lucky_number	Expected Output lucky_animal
1	== 1	= 1	"Parrot"
2	== 2	= 2	"Rabbit"
3	== 3	= 3	"Elephant"
4	== 4	= 4	"Beetles"
5	== 5	= 5	"Bears"
6	== 6	= 6	"Deer"
7	== 7	= 7	"Crane"
8	== 8	= 8	"Horse"
9	== 9	= 9	"Fish"
10	== 11	= 11	"Dolphin"
11	== 22	= 22	"Lion"
12	== 33	= 33	"Turtle"
13	Not in range 1-9 inclusive and not 11, 22, and 33	= 0	""

Submodule get_generation

Equivalence Partitioning

No.	Category	Input year	Expected Output generation
1	1901 <= year <= 1945	= 1930	"Silent Generation"
2	1946 <= year <= 1964	= 1950	"Baby Boomers"
3	1965 <= year <= 1979	= 1970	"Generation X"
4	1980 <= year <= 1994	= 1990	"Millennials"
5	1995 <= year <= 2009	= 2000	"Generation Z"
6	2010 <= year <= 2024	= 2020	"Generation Alpha"

Boundary Value Analysis

No.	Category	Input	Expected Output generation
1	Silent Generation / Baby Boomers	year = 1945 year = 1946	"Silent Generation" "Baby Boomers"

No.	Category	Input	Expected Output generation
2	Baby Boomers / Generation X	year = 1964 year = 1965	"Baby Boomers" "Generation X"
3	Generation X / Millennials	year = 1979 year = 1980	"Generation X" "Millennials"
4	Millennials / Generation Z	year = 1994 year = 1995	"Millennials" "Generation Z"
5	Generation Z / Generation Alpha	year = 2009 year = 2010	"Generation Z" "Generation Alpha"

Module logic

Submodule same_luck

Equivalence Partitioning

No.	Category	Input	Expected Output result
1	Lucky number of birthday1 is equal to lucky number of birthday 2	birthday1 = 9, 7, 2005 birthday2 = 8, 8, 2005	True
2	Lucky number of birthday1 is NOT equal to lucky number of birthday 2	birthday1 = 9, 7, 2005 birthday2 = 8, 9, 2005	False

Submodule is_master_number

Equivalence Partitioning

No.	Category lucky_number	Input lucky_number	Expected Output result
1	== 11	= 11	True
2	== 22	= 22	True
3	== 33	= 33	True
4	!= 11	= 20	False
5	!= 22	= 14	False
6	!= 33	= 43	False

Module date

Class Date

Method prompt_date

Equivalence Partitioning

No.	Category	Input	Expected Output result
1	Day = 1-31, Month = 1-12, Year = 1901-2024 (all inclusive)	day = 10 month = 3 year = 2006	(10, 3, 2006)
2	String month	day = 10 month = "March" year = 2006	(10, 3, 2006)
3	Invalid day	day = 0 month = 2 year = 2001	ValueError
4	Invalid month	day = 10 month = 0 year = 1999	ValueError
5	Invalid year	day = 20 month = 4 year = 9999	ValueError
6	Invalid day and month	day = -1 month = 0 year = 2024	ValueError
7	Invalid month and year	day = 4 month = 99 year = 2193	ValueError
8	Invalid day and year	day = 111 month = 12 year = 9	ValueError
9	Invalid day, month, and year	day = 99 month = 99 year = 9999	ValueError

Method format_month

Equivalence Partitioning

No.	Category	Input month	Expected Output month
1	January	= "January"	1
2	February	= "February"	2
3	March	= "March"	3
4	April	= "April"	4
5	May	= "May"	5
6	June	= "June"	6
7	July	= "July"	7
8	August	= "August"	8
9	September	= "September"	9
10	October	= "October"	10
11	November	= "November"	11
12	December	= "December"	12
13	Jan	= "Jan"	1
14	Feb	= "Feb"	2
15	Mar	= "Mar"	3
16	Apr	= "Apr"	4
17	Jun	= "Jun"	6
18	Jul	= "Jul"	7
19	Aug	= "Aug"	8
20	Sep	= "Sep"	9
21	Sept	= "Sept"	9
22	Oct	= "Oct"	10
23	Nov	= "Nov"	11
24	Dec	= "Dec"	12
25	All lowercase	= "jan"	1
26	All uppercase	= "JAN"	1
27	String does not match any month	= "Jupiter"	ValueError

White-box test cases

Module calculator

Submodule calculate_lucky_number

No.	Path	Test Data	Expected Output
1.	Do not enter if	birthday = Date(10, 3, 2006)	lucky_number = 3
2.	Enter if	birthday = Date(6, 6, 2017)	lucky_number = 22

Module date

Method prompt_date

No.	Path	Test Data	Expected Output
1	Enter first if, do not enter second if	day = 10 month = "march" year = 2006	(10, 3, 2006)
2	Enter first if, enter second if	day = 44 month = "april" year = 2006	ValueError
3	Enter 1st if, enter 2nd else of 2nd if	day = 14 month = "may" year = 200	ValueError
4	Enter else of 1st if, do not enter second if	day = 12 month = 9 year = 2004	(12, 9, 2004)
5	Enter else of 1st if, enter 2nd if	day = -1 month = 4 year = 2024	ValueError
6	Enter else of 1st if, enter 1st else of 2nd if	day = 4 month = 99 year = 1945	ValueError
7	Enter else of 1st if, enter 2nd else of 2nd if	day = 9 month = 12 year = 2174	ValueError

Test implementation and test execution

I have implemented test cases for each submodule in Black-Box Test Cases section. Most of test cases are in form of Equivalence Partitioning. One test case is in form of Boundary Value Analysis, which is submodule `get_generation()`, which I deemed appropriate.

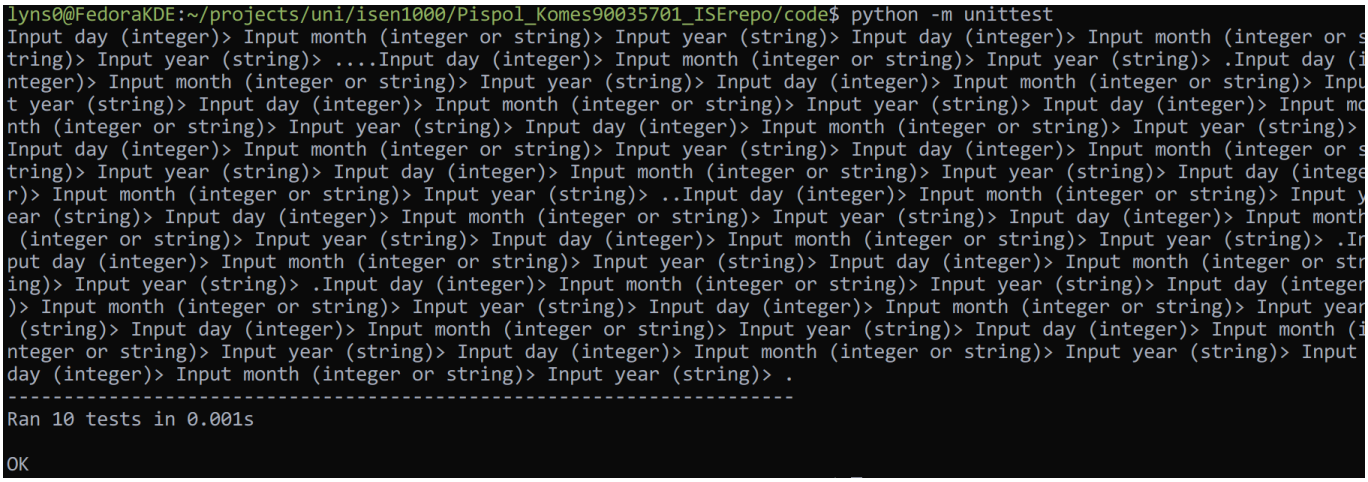
As for White-Box testing, I have chosen `calculate_lucky_number()` and `prompt_date()` as their paths affect their processes.

All test cases can be executed as follows,

```
python3 -m unittest
```

Note that this command needs to be executed inside `code/` directory

The result is that all test cases passed as expected.



The debug processes can be seen in the Version Control section.

Traceability Matrix

Design | Implementation

Module name	BB (EP)	BB (BVA)	WB	Data types	Form of IO	EP	BVA	WB
calculate_lucky_number	Done	-	Done	Date -> integer	Input: Parameter Output: Return	Done	-	Done
get_lucky_animal	Done	-	-	integer -> string	Input: Parameter Output: Return	Done	-	-
get_generation	Done	Done	-	integer -> string	Input: Parameter Output: Return	Done	Done	-

Module name	BB (EP)	BB (BVA)	WB	Data types	Form of IO	EP	BVA	WB
same_luck	Done	-	-	Date -> boolean	Input: Parameter Output: Return	Done	-	-
is_master_number	Done	-	-	integer -> boolean	Input: Parameter Output: Return	Done	-	-
prompt_date	Done	-	Done	string -> Date	Input: Keyboard Output: Class member modification	Done	-	Done
format_month	Done	-	-	string -> integer	Input: Parameter Output: Return	Done	-	-

Version control

As my version control log is very long. I believe it is impractical to take a screenshot.

```
lyns0@FedoraKDE:~/projects/uni/isen1000/Pispol_Komes90035701_ISErepo/documents$ git log | grep "commit" -c
103
```

So, I used this command instead.

`git log --pretty=format:"%h%x09%an%x09%ad%x09%s" > git.log`

`git.log` can be found in `documents/` directory.

```
8957ac5 Komes Pispol Wed May 7 11:24:51 2025 +0800 Fix: some spacings in report

26a41df Komes Pispol Wed May 7 11:20:47 2025 +0800 Refactor: edited formatting,
replaced unittest image with latest, and correct spellings

862e303 Komes Pispol Wed May 7 11:04:01 2025 +0800 Fix: report whitebox fixed
expected output on prompt_date path 4

a2a86b2 Komes Pispol Wed May 7 11:02:59 2025 +0800 Add: test_whitebox

4bbb51e Komes Pispol Wed May 7 10:53:27 2025 +0800 Chore: fixed newline formatting
in report
```

```
bcd95c6 Komes Pispol Wed May 7 10:52:40 2025 +0800 Update: report, added white box
test cases

04096f2 Komes Pispol Tue May 6 12:54:43 2025 +0800 Update: report discussion
section

72dd4a8 Komes Pispol Tue May 6 12:33:14 2025 +0800 Chore: changed an unchanged
date module name

7895de4 Komes Pispol Tue May 6 12:31:46 2025 +0800 Update: added new images for
code running instructions

2a38084 Komes Pispol Tue May 6 12:22:39 2025 +0800 Update: included explanation
and assumption in module description section

52ab45b Komes Pispol Tue May 6 09:07:53 2025 +0800 Update: report expanded
discussion part

ed6c088 Komes Pispol Mon May 5 19:15:02 2025 +0800 Merge branch 'design' into
implementation

3cabfc9 Komes Pispol Mon May 5 19:14:55 2025 +0800 Update: added docstring to each
submodule

c4ccec5 Komes Pispol Mon May 5 19:11:05 2025 +0800 Update: made traceability
matrix more comprehensible

eb59a95 Komes Pispol Mon May 5 19:04:56 2025 +0800 Update: report expanded
Modularity section

93db97f Komes Pispol Mon May 5 18:45:10 2025 +0800 Refactor: applied
data_structures module name change

e3d00c2 Komes Pispol Mon May 5 18:44:00 2025 +0800 Refactor: changed module name
data_structures to date

c97fbfd Komes Pispol Mon May 5 18:42:36 2025 +0800 Refactor: changed module name
data_structures to date and applied refactors from implementation

937c079 Komes Pispol Mon May 5 18:34:48 2025 +0800 Refactor: changed keyboard
simulation method from patch to io + sys

6803998 Komes Pispol Mon May 5 18:19:47 2025 +0800 Merge branches 'implementation'
and 'design' into testing so that test cases can be adjusted to accommodate
refactored design

b92184c Komes Pispol Mon May 5 18:18:42 2025 +0800 Refactor: Date to not call
prompt_date() at initialization and let frontend handle that instead

cd89b61 Komes Pispol Mon May 5 15:20:48 2025 +0800 Update: report module
description, described what each submodule does in detail.

40e99b3 Komes Pispol Mon May 5 14:45:50 2025 +0800 Update: changed some test cases
```

```
to use last name and last four digits of student id

3d0df02 Komes Pispol Mon May 5 14:08:05 2025 +0800 Update: report Modularity added
instructions for running code correctly

1a30ffa Komes Pispol Sat May 3 17:06:36 2025 +0800 Add: implemented main.py

b3aa80a Komes Pispol Sat May 3 16:58:29 2025 +0800 Update: changed test same_luck
to accomodate keyboard input testing

b0fc3ff Komes Pispol Sat May 3 16:55:37 2025 +0800 Update: enable lucky_number to
take parameter

65667c5 Komes Pispol Sat May 3 16:53:22 2025 +0800 Update: test_same_luck to test
keyboard input

c03811f Komes Pispol Sat May 3 16:40:49 2025 +0800 Update: changed same_luck to
handle keyboard input instead of parameter

5593957 Komes Pispol Sat May 3 16:35:46 2025 +0800 Update: test cases that rely on
Date to test by simulating keyboard input

0910afc Komes Pispol Sat May 3 16:29:57 2025 +0800 Update: lucky number to take
keyboard input instead

0c4251c Komes Pispol Sat May 3 16:28:15 2025 +0800 Update: to take keyboard input
instead

98c7848 Komes Pispol Sat May 3 16:15:30 2025 +0800 Merge branch 'design' into
implementation

d98629b Komes Pispol Sat May 3 16:14:48 2025 +0800 Update: test for lucky number
to test keyboard input instead

39a439b Komes Pispol Sat May 3 16:08:55 2025 +0800 Update: changed prompt_date and
calculate_lucky_number's input method to keyboard input

f28c694 Komes Pispol Sat May 3 15:57:43 2025 +0800 Update: changed
test_constructor to test_prompt_date and test using keyboard input simulation

7059224 Komes Pispol Sat May 3 15:48:32 2025 +0800 Refactor: constructor test case
and module is now a separate method called prompt_date

464b446 Komes Pispol Sat May 3 15:42:02 2025 +0800 Fix: prompt_date not converting
input to int before constructing Date

febf5fa Komes Pispol Sat May 3 15:31:31 2025 +0800 Add: implemented main

2fae4d6 Komes Pispol Sat May 3 11:23:25 2025 +0800 Update: report test
implementation and test execution section, and added screenshot

b1f9cd5 Komes Pispol Sat May 3 11:02:55 2025 +0800 Update: implemented BVA for
test_get_generation
```

```
7dec565 Komes Pispol Sat May 3 10:54:29 2025 +0800 Update: updated traceability
matrix according to tasks fulfilled

0c889da Komes Pispol Sat May 3 10:52:04 2025 +0800 Update: added BVA for
get_generation

709f64b Komes Pispol Sat May 3 10:44:25 2025 +0800 Refactor: design, reformatted
blackbox testing for each module

c6478d1 Komes Pispol Sat May 3 10:41:45 2025 +0800 Add: design, traceability
matrix

e2cd714 Komes Pispol Fri May 2 15:50:21 2025 +0800 Update: constructor valid test
cases to expect (day, month, year) instead of None

8f946b8 Komes Pispol Fri May 2 15:46:27 2025 +0800 Fix: format month called before
turning month into integer

9c90569 Komes Pispol Fri May 2 15:42:54 2025 +0800 Fix: test constructor to
compare expected and actual value properly

3af002d Komes Pispol Fri May 2 15:23:44 2025 +0800 Fix: test data structure to
handle exceptions

496cc0b Komes Pispol Fri May 2 15:19:46 2025 +0800 Fix: format month to handle
keyerror

21c8199 Komes Pispol Fri May 2 15:10:37 2025 +0800 Fix: to call format_month from
test_date

72108e5 Komes Pispol Fri May 2 15:07:34 2025 +0800 Fix: called is_instance
incorrectly

f9a236c Komes Pispol Fri May 2 12:29:40 2025 +0800 Chore: removed pycache from
tracking

4cf6b9f Komes Pispol Fri May 2 12:26:24 2025 +0800 Update: gitignore to ignore
.pyc

08cfb58 Komes Pispol Fri May 2 12:23:46 2025 +0800 Update: gitignore to ignore
pycache

45b7778 Komes Pispol Fri May 2 12:21:01 2025 +0800 Update: implemented additional
test cases for test_data_structure

dfc8134 Komes Pispol Fri May 2 11:58:50 2025 +0800 Update: design, added more test
cases for format_month

0a51877 Komes Pispol Fri May 2 11:54:55 2025 +0800 Update: design, formatted date
constructor test cases

d996328 Komes Pispol Fri May 2 11:48:58 2025 +0800 Add: implemented test date
constructor
```

```
b932a4c Komes Pispol Fri May 2 11:48:26 2025 +0800 Update: test case for
calculate_lucky_number to handle master number and not master number

c2959ac Komes Pispol Fri May 2 11:32:41 2025 +0800 Update: design (report)
submodule calculate_lucky_number updated to have proper cases and fixed expected
outputs

1913bf5 Komes Pispol Fri May 2 11:28:41 2025 +0800 Update: design (report) added
test case for Date constructor

8cecd02 Komes Pispol Fri May 2 11:20:59 2025 +0800 Update: reverted tuples imports
to date

9d04a86 Komes Pispol Fri May 2 11:10:45 2025 +0800 Add: Implemented format_month

c5e5ca8 Komes Pispol Fri May 2 11:05:25 2025 +0800 Add: implemented test case for
format_month

57ecc69 Komes Pispol Fri May 2 10:59:37 2025 +0800 Update: report add test case
for class date, format month method

ab355c3 Komes Pispol Fri May 2 10:47:32 2025 +0800 Update: report replaced
submodule imports that are Date with tuble

2086e2e Komes Pispol Fri May 2 10:41:11 2025 +0800 Update: made Date able to take
month as string and updated related submodules

6327e1c Komes Pispol Fri May 2 10:34:32 2025 +0800 Chore: fixed indentation for
files

33064cd Komes Pispol Thu May 1 15:44:15 2025 +0800 Update: changed
test_calculate_lucky_number to handle exceptions better

742ba25 Komes Pispol Thu May 1 15:37:57 2025 +0800 Refactor: ValueError in
calculate_lucky_number is now raised in Date class

8d1ea0a Komes Pispol Thu May 1 11:36:24 2025 +0800 Fix: calculate lucky number to
not include error message in invalid cases

51c7dec Komes Pispol Thu May 1 11:33:45 2025 +0800 Fix: calculate_lucky_number to
handle invalid date

1b1e63b Komes Pispol Thu May 1 11:16:58 2025 +0800 Fix: test cases for
is_master_number and calculate_lucky_number

a31d9fc Komes Pispol Thu May 1 11:12:42 2025 +0800 Add: implemented get_generation

563c454 Komes Pispol Thu May 1 11:07:46 2025 +0800 Add: implemented
get_lucky_animal

408a32d Komes Pispol Thu May 1 10:55:17 2025 +0800 Add: implemented
calculate_lucky_number

487a381 Komes Pispol Thu May 1 09:06:53 2025 +0800 Update: implemented all
```

```
submodules for logic module

e5683d9 Komes Pispol Thu May 1 09:00:12 2025 +0800 Add: placeholder functions for
calculator and logic modules

7200c08 Komes Pispol Thu May 1 08:56:19 2025 +0800 Refactor: made all test case
messages of test calculator module more comprehensible

3d52b46 Komes Pispol Thu May 1 08:54:22 2025 +0800 Add: test code for same_luck
and is_master_number

1e692ac Komes Pispol Thu May 1 08:43:37 2025 +0800 Merge branch 'design' into
testing to apply the new design.

abc68fe Komes Pispol Thu May 1 08:43:14 2025 +0800 Refactor: moved
is_master_number to module logic instead of calculator

06e161b Komes Pispol Thu May 1 08:41:07 2025 +0800 Add: test code for
get_generation

e7e2f3d Komes Pispol Thu May 1 08:38:13 2025 +0800 Add: test code for
get_lucky_animal

a9ec886 Komes Pispol Wed Apr 30 19:43:03 2025 +0800 Add: test_calculator, added
test case for calculate_lucky_number

5cf9952 Komes Pispol Wed Apr 30 19:26:41 2025 +0800 Add: implemented
data_structure.py

3b7496a Komes Pispol Wed Apr 30 18:59:06 2025 +0800 Update: gitignore added .zip

9e802c0 Komes Pispol Wed Apr 30 16:36:10 2025 +0800 Update: added placeholder for
Cover page, introduction, modularity, white box, summary, version control, and
discussion

63d745a Komes Pispol Wed Apr 30 16:27:28 2025 +0800 Update: report black box added
submodule same_luck

2e10393 Komes Pispol Wed Apr 30 16:15:52 2025 +0800 Refactor: report changed
variable names for submodule get_generation in module desc

3c04d5f Komes Pispol Wed Apr 30 16:14:03 2025 +0800 Update: report black box
section added get_lucky_animal and get_generation submodules

bbf14eb Komes Pispol Tue Apr 29 09:07:12 2025 +0800 Refactor: report formatted
modules into code blocks

77dd50f Komes Pispol Mon Apr 28 16:45:48 2025 +0800 Update: report add black box
test case for calculate_lucky_number

6764061 Komes Pispol Mon Apr 28 16:25:45 2025 +0800 Update: report add black box
test case for is_master_number

2d44177 Komes Pispol Mon Apr 28 16:09:12 2025 +0800 Update: report submodule
```

```
get_generation now exports string instead of boolean

cba1745 Komes Pispol Mon Apr 28 15:58:51 2025 +0800 Update: report, renamed module
analyzer to logic and added module data_structures containing class Date

46fc36b Komes Pispol Sat Apr 26 15:47:02 2025 +0800 Update: report module section
added module calculator and module analyzer

5cf61fc Komes Pispol Sat Apr 26 15:40:45 2025 +0800 Update: report add sections

daf3db3 Komes Pispol Sat Apr 26 15:40:09 2025 +0800 Add: gitignore for .obsidian

4decfde Komes Pispol Sat Apr 26 15:13:50 2025 +0800 Add: initialized report
markdown

a73641b Komes Pispol Sat Apr 26 15:08:39 2025 +0800 Initial commit
```

Discussion

I started this project by writing module descriptions in order to develop black box test cases first and foremost. With that, I have experienced test-driven development for the first time. It is convenience that each implementation can immediately be verified whether it is working as intended or not, using Black-Box test cases. However, the module design had improved over time, leading to modification of test cases and documentation. This in turn led to multiple context switching, having to switch branches every few modifications, which is tedious for a solo development.

I believe that my work flow would be better if I had understood every requirement at the beginning. There were times that I would misunderstand a requirement halfway and had to rewrite every part, including report, test code, and production code. Some changes led to chain reactions that I had to apply the change I made on one submodule and a few other modules. But ultimately, I had to change the code back when I had finally understood the requirement because I couldn't use `git reset` when I have already made new features over the misunderstood changes. This taught me that branches should not be defined from start but should be created as I need, so that `git reset` can actually be useful.

In the end, this assignment effectively taught me how to use git version control effectively, how to use merge, and when to branch.