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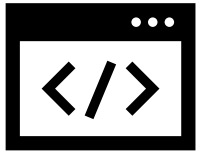

BIOE50010 – Programming 2

Computer Lab 5, Assignment 1

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Coursework 1

Questions should be logged on the ed discussion

Submission deadline: 3 pm on 10 November (amended!)

End of service time: 9 am on 10 November (amended!)

- TIF Image Reader
- We test…
  - *your understanding to the file format* **(since last Friday…)**
  - *your capability to bridge your understanding and programmable tasks* **(weeks 1-4)**
  - *you follow the best coding practice* **(week 4)**
- ***"Working code is the best code."***

TIFF - Test Yourself (we will not answer !)

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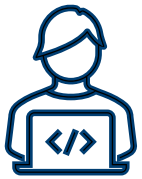
1. Can you draw a schematic (logical organization) of a **TIFF** file?
2. What information should I get from the image **header**? What does the terminology **offset** mean?
3. What is an **IFD**? What is an **IFD entry**? What is inside an **IFD entry**?
4. Why we need **tags**?
5. What are the available **DataTypes** in an **IFD entry**? What is the size of each **DataType**?
6. What does **DataCount** mean in an **IFD entry**?
7. What is **DataOffset** in an **IFD entry**? Where is the location of the tag data in the file, if the data size $\leq$ the size of the **DataOffset** field?
8. What is a **strip** in a **TIFF** mage? What does **RowsPerStrip** mean? How do you link it with **ImageLength**? How many **strip**s are there in total?
9. What does **StripOffsets** mean? Where is the location of the **strip** data in the file?
10. What does **StripByteCounts** mean? What is the size of **strip** data?



Today

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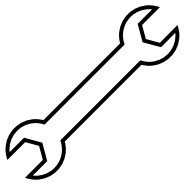
- Continue your work on Assignment 1.
- May I remind you again…
  - You do not need to consider any object-oriented programming concepts;
  - The only available package to you is **`math`**;
  - Read section 3 with great care – very important but sometimes can be redundant;
  - Code as per instruction – double check your data types of function argument/return;
  - Study the call script as well as the sample console output – not always straightforward!
  - Do not hard code anything.
- Raise your individual questions.



Error/Exception Handling (1/)

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Disclaimer: this topic may not necessarily reflect in your assignment 1 !

- `pass`, `break`, `continue`
  - The `pass` statement is a null statement which can be used as a placeholder for code;
  - The `break` statement is used to terminate the loop immediately;
  - The `continue` statement forces to execute the next iteration of the loop.

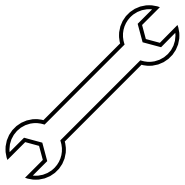
Example: use of `break`

```
for i in range(5):
    if i == 3:
        break
  print(i)

# 0, 1, 2 will be printed
```

Example: use of `continue`

```
for i in range(5):
    if i == 3:
        continue
    print(i)

# 0, 1, 2, 4 will be printed
```

- Recall Tic Tac Toe: if user input is an `int` outside the range of 1-9, how would you do?



Error/Exception Handling (2/)

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Disclaimer: this topic may not necessarily reflect in your assignment 1 !

- An `Exception` is an *error* that happens during the execution of a program.
  - `Exception`: programme level
  - Error: system level
- `Exception`s can be handled using the `try…except…` statement

Example: use of `try…except…`

```
while True:
    try:
        x = int(input("Please enter a number (1-9): "))
        break
    except ValueError:
        print("That was not valid number. Try again...")
```

`ValueError` is an `exception` due to the failure of typecasting, *e.g.*, if you try to typecast a `str` type variable to an `int` type variable.

- A more complex exception handling syntax is `try…except…finally…`