## Fractal Art in Complex Numbers

This Latex Activity involves replicating the “Fractal.pdf” as close as possible using Latex. The “main.tex” contains the template code and you will fill the necessary code in “main.tex” and “references.bib” (initially empty) to generate “main.pdf” that is similar to the “Fractal.pdf”.

Below is the detailed description of the documents you need to create:-

1. main.tex:- All the packages required for this activity are already imported in this file and there is no need to import new packages (or exclude any) from this file. The content to be written can be referred from “Fractal.pdf”. Now the major components of this file are as follows:-
   1. Preamble → Title, Author, Date. Author is your roll no. with small ‘b’.
   2. Section 1: Introduction → You need to write an equation using “\begin{equation}”, with the appropriate label (keep label as “eq:eqn”). You also need to create 2 bullet points (unordered list).
   3. Section 2: Fractal Art Gallery → Create the table as seen in “Fractal.pdf” using appropriate commands. You need to give a citation link to the one (there is only 1) url reference that will also be mentioned in the bibliography.
   4. Section 3: Mandelbrot Set → This section contains 2 subsections “Definition” and “Diagram”. In “Definition”, you have to give a cross-reference to the equation in Section 1 using an appropriate command. In “Diagram”, you need to include the “mandelbrot.png” image (in the same directory as main.tex). Keep width as half of “\textwidth”. Include using “\begin{figure}[H]”. Give the caption as in “Fractal.pdf”.
   5. Enter commands to the references from “references.bib”.

Keep the image and the table in a **centered** position.

1. references.bib:- Here you will include a url reference to “<https://en.wikipedia.org/wiki/Fractal_art>”. No title, no author, no note, no date etc.

Use these commands in a VLab terminal (at labDirectory) to create main.pdf:-

pdflatex main

bibtex main

pdflatex main

pdflatex main

You can apply these commands in the Ubuntu terminal of your lab machine in same directory as main.tex

To view the pdf, you can click the “Open Directory” option of VLab (or you can open bodhitreeWorkspace/.../6/137/562/labDirectory), which takes you to the bodhitreeWorkspace of your lab machine. There you can view the pdf by the machine's pdf viewer.

**Important Note:-** Submissions will be graded manually (after the exam), hence the marks that the autograder will give, are not the final ones. Autograder evaluation is not at all the reflection of how manual grading will be done. They are just for assistance during the exam.

Autograder will just check if the pdf-making is being done without errors or not and will also check the number of times each time it is supposed to be present (only in main.tex). Manual grading will involve seeing how well the pdf (generated from .tex) has been replicated.

**(Manual) Grading policy: (Total 4)**

* 0.5 marks for correct title, author, date and correct sections and subsections and correct text content.
* 0.5 marks for the image import in pdf.
* 0.5 marks for correct captions of the image and correct equation.
* 1 mark for the table.
* 0.5 marks for correct usage of cross-reference to the equation in Section 1.
* 1 mark for correct citation link in main.tex and correct bibliography in references.bib
* marks = max{0, marks-1} if error comes while creating pdf from pdflatex commands.

**Note**: Template code of “main.tex” contains comments to help proceed in completing “main.tex”