

1) Solve $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$

$$u(x, 0) = 0; \quad u(0, y) = 0, \quad u(x, 2) = 0, \quad u(2, y) = 100$$

$$\delta x = \delta y = 0.25$$

Use Standard 5 point formula to solve

2) Solve $\frac{\partial^2 u}{\partial x^2} + 5 \frac{\partial^2 u}{\partial y^2} = 16$

$$u(x, 0) = 0; \quad u(0, y) = 0, \quad u(2, y) = 10, \quad \frac{\partial u}{\partial y} = 5u \text{ on } y = 1$$

$$\delta x = \delta y = 0.25$$

3) Solve $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0 \quad 0 \leq x^2 + y^2 \leq 1$

$$x \geq 0, y \geq 0 \quad \delta x = \delta y = 0.5$$

$$u = 5 \text{ at } x = 0 \text{ and } y = 0$$

$$\frac{\partial u}{\partial n} = (x^2 - y^2) \text{ on } x^2 + y^2 = 1$$

Submit your code (both calculation, plotting (with data, if used). Along with Figures.
MA1NNNN-__Name-__26Feb2020.zip or .tar and submit

Please don't submit as directories in moodle. Only one single file .zip or .tar is accepted

Make directory at your workspace

MS16999-__VishalBhardwaj-__27Feb2020

Label Figures properly.

Further code should also have proper comments explaining the block. Also, put your name as Author and place on the code

If one code is used for calculation plotting then name : Problem1.py

Otherwise

Problem1.C and Plotting1.C

I assumed that .py has by default the plotting and don't need the plotting tool.
While .C might need.

If Problem1 is divided into two parts (not recommended)

Problem1-a

Problem1-b

Figures should be in .png (or .eps) format

Figure1-a.png

Figure1-b.png

Don't forget to use your roll number and name.