Linux and Programming

Name_____ ID_____

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Warning!

Do not use your friend's computer to do this assignment. It will be recognized as academic dishonesty. You must establish your own platform first that is also part of this assignment.

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Assignment Descriptions:

1. **Write both codes in Fortran and C by referring to the file, fortran_c_instruction.pdf. Then compile them and submit the data extracted from volume.fdata and volume.cdata.**

   - The file names must be "volume.f" for the Fortran code and "volume.c" for the C code.

   - For the Fortran code, compile it by typing "gfortran volume.f" and execute it by typing "./a.out"

   - For the C code, compile it by typing "gcc volume.c –lm" and execute by "./a.out"

   - Copy and paste the results (numerical values up to **30 data**) on the report. Make a **table** so it can be comparable and make sure these are **similar** values.

2. **Plot one of the above results with gnuplot. Paste the picture on the report.**

   - Use a result either from Fortran or C. (The results are equal.)

   - Refer to "gnuplot_tutorial.pdf" to plot the result. **Do not** forget to label the axes.

   - Copy and paste the picture on the report. **Make sure** if it is reasonable.

3. **Modify the codes and submit them.**

   - Change the code for volumes of sphere into areas of sphere. The formula is $A = 4\pi r^2$.

   - Modify both Fortran and C codes, and compile and execute them. (Change the file names.)

   - Make the table of results (numerical values up to **30 data**) on the report for Fortran and C.

   - **Copy and paste the codes** modified in the report.

4. **Submit the plot of both volume and area data as one picture.**

   - Use a result either from Fortran or C. Refer to "gnuplot_tutorial.pdf" to plot multiple data.

   - Submit the picture as part of the report. (Note that you have to have **two different curves in one graph**.)

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Check lists: The report must have two numerical data table (both Fortran and C data), one plot of the volume of sphere, modified Fortran and C codes, and one graph of both area and volume of sphere.

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