A00 · Practice Assignment

Introduction

Assignment Goals

Practice using an ENGR 132 problem generator in MATLAB.

Successful Completion

This assignment has two (**2**) problems. Each problem will require you to solve a problem that is generated using a problem generator file that came with this assignment. The deliverables list in each problem contains what you are expected to submit for this assignment.

1. You will need the file A00_skills.p that is included in the activity folder with this set of instruction. You will need a web browser to access Gradescope to submit your work.
2. Read *Notes Before You Start*, on **Page 1**.
3. Read each problem carefully. You are responsible for following all instructions within each problem.
4. Check *Confirm your Submission* when your work is complete to see how to check your final submission and to see a sample submission for this assignment.

Notes Before You Start

Problem Generator File (A00_Skills.p)

In this activity's folder, you will see a file named **A00_skills.p**. This is a MATLAB function file that generates problem information for each skill problem in this assignment. Most MATLAB assignments in this course will have a similar problem generator file. This activity will help you learn how to use a problem generator to get instructions and details for a problem you must solve.

To use this file, you must do the following:

1. Open MATLAB and identify your current folder.
2. Download **A00_skills.p** from the course MATLAB Drive folder and into your current MATAB folder (this can be on your personal computer or in your own MATLAB Drive folder).
3. Once the .p file is in your current folder, you can use it like a built-in function. The file requires two inputs:
    a. Input 1: Your 8-digit PUID number (you can leave off the leading 00s)
    b. Input 2: the problem number

    Example of what you will enter at the Command Line in the Command Window:

    ```
    >> A00_skills(12345678,1)
    ```
4. When you run this command, you will get information displayed to the Command Window, to a figure window that opens separately, or both. No information will be stored in your Workspace when you use the **A00_skills.p** function. You cannot open the file in the MATLAB Editor.

Gradescope

You will submit all your deliverables to Gradescope for grading. View the Gradescope help for online assignments if you need assistance with submitting your work.

Need to access Gradescope?

1. Log into Brightspace and open your ENGR 132 course.
2. Click **Content** from the black menu ribbon at the top of the page.
3. Click **Gradescope** from the Table of Contents in the left sidebar.
4. Click the top item, which is a link that will open Gradescope within Brightspace.
5. With Gradescope open within Brightspace, you can select the assignment you are ready to submit.

Opening Gradescope through Brightspace will auto-enroll you in the Gradescope course for your section.

Need help with Gradescope?

Navigate to the same Brightspace location as above and view the links and documents in Gradescope Help.

Problem 1: Create a Matrix

Introduction

This is a practice "skills" question that displays instruction text to the MATLAB Command Window. You will use the provided .p code file to generate problem instructions and submit your answer to Gradescope.

Problem Generator Information

If you have questions about how to use the problem generator, review this link that shows step-by-step instructions.

File Name	PUID	Problem Number
A00_skills	Your 8-digit PUID (leave off the leading 00)	1

Submission

Gradescope Assignment	Class 1B - Activity	Assignment Type	Individual
Deliverables	☐ Requested information and solutions		

Problem

Demonstrate how to create a matrix in MATLAB using a single command. Submit the command to Gradescope.

Step 1. Generate the instructions for this problem using MATLAB. Review this link for step-by-step instructions.

1. With MATLAB open, make sure **A00_skills.p** is in your current folder in MATLAB.
2. Type this command into the MATLAB Command Window prompt:

   ```
   >> A00_skills(PUID, 1)
   ```

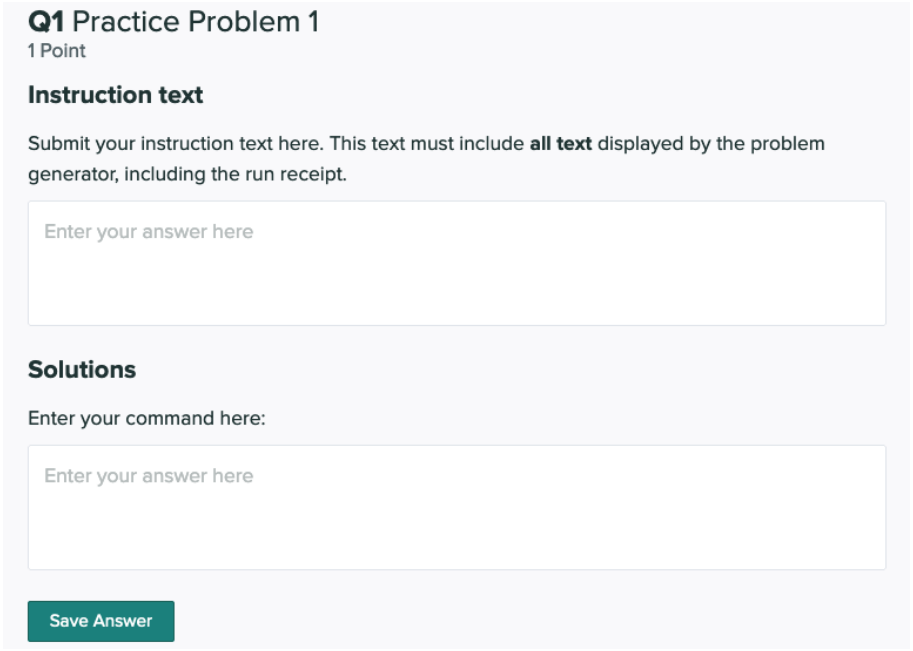
   Where you replace PUID with your 8-digit Purdue University ID number (leave off the leading 00).
3. Read the written instructions that appear in the Command Window.

Step 2. Complete the problem assigned in the instruction text. Test your solution in MATLAB.

Step 3. Submit your work.

1. Go to Gradescope in your web browser (reread instructions on Page 1 if necessary)
2. Open the assignment named **Class 1B - Activity - Practice Assignment.**

3. Find **Q1**. It will have two boxes where you can enter information:



   a. **Instruction text**. Copy the instruction text that is displayed in the Command Window. Paste it into this box. Include all text provided, including the run receipt.
   b. **Solutions**. Copy the MATLAB command you wrote. Paste it into this box.

4. When you have entered all the required information, click the **Save Answer** button.

Problem 2: Solve an Equation

Introduction

This is a practice "skills" question that displays a figure window. You will use the provided .p file to generate instructional figure window and then submit your solution to Gradescope.

Problem Generator Information

If you have questions about how to use the problem generator, review this link that shows step-by-step instructions.

File Name	PUID	Problem Number
A00_skills	Your 8-digit PUID (leave off the leading 00)	2

Submission

Gradescope Assignment	Class 1B - Activity	Assignment Type	Individual
Deliverables	☐ Requested information and solutions ☐ Supporting file: A00_eqFig_*login*.png		

Problem

Write a MATLAB command that will calculate the solution to the equation given in the figure window. Submit the command and the result to Gradescope.

Step 1. Use MATLAB to generate the figure window with the equation for this problem. Review this link for step-by-step instructions.

1. With MATLAB open, make sure **A00_skills.p** is in your current folder in MATLAB.
2. Type this command into the MATLAB Command Window prompt:

   ```
   >> A00_skills(PUID, 2)
   ```

   Where you replace PUID with your 8-digit Purdue University ID number (leave off the leading 00).
3. Read the equation given in the figure window that pops up.

Step 2. Write the MATLAB command to solve the equation in the figure window. Test your solution in MATLAB so that you can view the result.

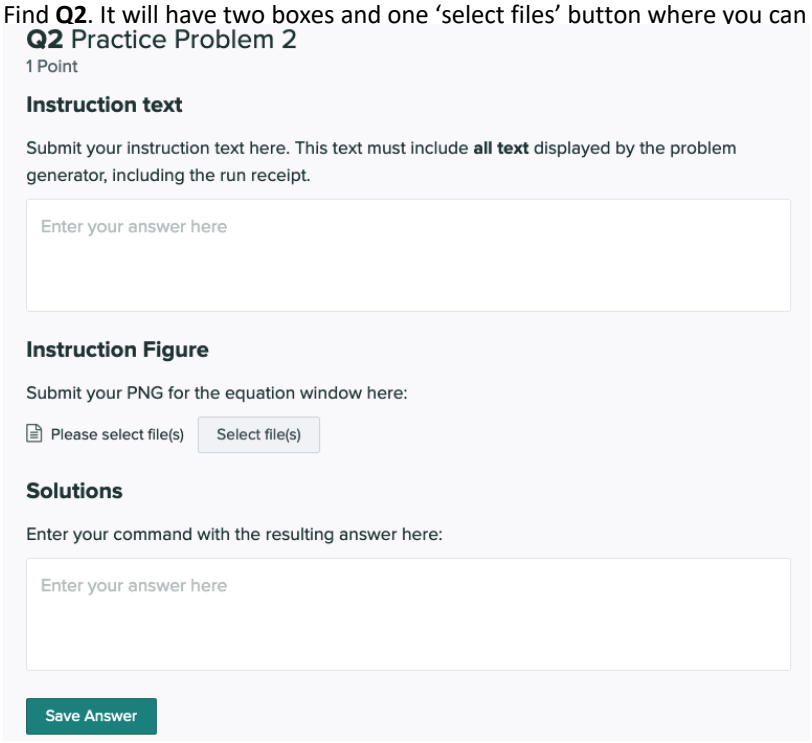
Step 3. Save an image of the figure window. See this video for help.

1. From the figure window, click File > Save As
2. In the Save-As dialog box that opens,
   a. Set the format to **PNG** (portable network graphics file)
   b. Name the file **A00_eqFig_*login*.png**, where *login* is your Purdue career account login.
3. Save the image file in a location you can find easily.

Step 4. Submit your work.

1. Go to Gradescope in your web browser (reread instructions on Page 1 if necessary)
2. If necessary, open the assignment named **Class 1B - Activity - Practice Assignment**.

3. Find **Q2**. It will have two boxes and one ‘select files’ button where you can enter information:



   a. **Instruction text**. Copy the instruction text that is displayed in the Command Window. Paste it into this box. Include all text provided, including the run receipt.

   b. **Instruction figure**. Click the “Select file(s)” button. Navigate to the location of your saved image file. Select the file and click the “Choose” button. You will see the filename next to the button.

   c. **Solutions**. Copy the MATLAB command you wrote along with the resulting solution. Paste them together into this box.

4. When you have entered all the required information, click the **Save Answer** button.

Confirm your Submission

You should save your progress on each question in a skills problem so that you do not lose your progress. To confirm your answers, click the **Submit & View Submission** button at the bottom of the questions in Gradescope (or select the assignment name from the Gradescope dashboard, if you have already saved your answers and navigated away from the original submission page).

Example Submission for Q1

Q1 Practice Problem 1
1 Point

Instruction text

Submit your instruction text here. This text must include **all text** displayed by the problem generator, including the run receipt.

Q1. Instruction Text
A00_skills_solver(12345678,1) ran at 12-Aug-2021 16:28:25

Write a MATLAB command that will create the matrix shown below
and assign it to the variable mat_Q1 in the Workspace.

mat_Q1 =

```
5   3   9   4
4   0   5   6
4   9   5   1
```

Make sure to read the PDF for further instructions

Solutions

Enter your command here:

```
mat_Q1 = [5, 3, 9, 4; 4, 0, 5, 6; 4, 9, 5, 1];
```

Example Submission for Q2

Q2 Practice Problem 2
1 Point

Instruction text

Submit your instruction text here. This text must include **all text** displayed by the problem generator, including the run receipt.

Q2. Instruction Text
A00_skills_solver(12345678,2) ran at 12-Aug-2021 16:29:14

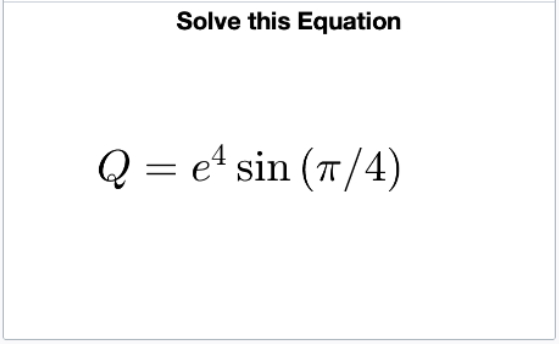
See the displayed figure.

Make sure to read the PDF for further instructions

Instruction Figure

Submit your PNG for the equation window here:

sample_fig.png Download



Solutions

Enter your command with the resulting answer here:

```
Q = exp(4) * sin(pi/4)
Q =
    38.607
```