Homework 1

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Problem 1: True-False Questions

1) FALSE

2) FALSE

3) TRUE

4) FALSE

5) FALSE

6) FALSE

7) FALSE

8) FALSE

Problem 2: Inverse vs. Forward Problems

Forward Problems: Easier/Least Difficult
Inverse Problems: Harder/Most Difficult

1)

Forward: Given an image, describe what the object in the image is

Inverse: Given a text description of the image, show all possible images that can yield the description, within some bounds

2)

Forward: Given a vehicle, find out how long it would take to go a certain distance

Inverse: Given time and distance, find all vehicles that could meet the criteria to the smallest of errors

3)

Forward: Given a string of words, predict the next sentence

Inverse: Given a full sentence, find the necessary weights to create the sentence

Problem 3: Git and GitHub

1) Repository: https://github.com/amahammad132/COGS4210

2) The file 'merge_conflict.txt' was created in the main branch, and a modification was put in the 'Amaan' branch. After running `git merge`, a conflict occurred, so a merge commit was needed in order to fix it.

3)

restore: Restores a file back to the latest commit and an unstaged environment.

checkout: Used to switch between branches by changing the HEAD pointer. Does not modify anything, including branch's history

reset: Set HEAD to a given commit hash, modifying the branch's history

revert: Unstages any specific staged changes such that these changes cannot be committed. Does not affect the actual file changed.

Command	Affects Commit History?	Affects Staging Area?	Affects Working Directory?	Typical Use Case
git reset	yes	yes(hard, mixed) no(soft)	no(soft, mixed) yes(hard)	Uncommit stages to restage them
git restore	yes	no	no	Undo changes in local
git rm	yes	yes	yes	remove useless files

Table 1: Comparison of git reset, git restore, and git rm.

Problem 4: Python and NumPy

In Repository

Problem 5: Polishing a Repository

Part of LMS zip file submission (seir_problem5/)