COMPSCI 527 Homework 2

XXXYourName(s)

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[Please remove all the extra stuff below from the `.tex` file before you hand in the resulting PDF file. However, please leave section headers and `\newline` commands where they are. It is OK to add `\newline` commands if you find that useful, but do so sparingly.

There are two ways to remove this extra stuff. One is to do so physically (look for matching `START/END` comments), the other is to change the string `\staystrue` close to the beginning of the file to `\staysfalse`

Problem 1(a)

Problem 1(b)

Problem 1(c)

Problem 1(d)

Problem 1(e)

Problem 1(f)

Problem 1(g)

Here is how you would write the fill pattern for a 4×4 identity matrix:

$$I = \begin{bmatrix} * & & & \\ & * & & \\ & & * & \\ & & & * \end{bmatrix}$$

Problem 1(h)

Problem 1(i)

Problem 1(j)

Problem 1(k)

Problem 2(a)

Problem 2(b)

Problem 2(c)

Here is one way to render the Gram-Schmidt pseudo-code in LaTeX. You can use this as a template to write your own pseudo-code.

$r = 0$
for $j = 1$ to n
    $\mathbf{a}'_j = \mathbf{a}_j - \sum_{i=1}^{r} (\mathbf{q}_i^T \mathbf{a}_j)\mathbf{q}_i$
    if $\|\mathbf{a}'_j\| \neq \mathbf{0}$
        $r = r + 1$
        $\mathbf{q}_r = \frac{\mathbf{a}'_j}{\|\mathbf{a}'_j\|}$
    end
end

The `\+` and `\-` commands tell the interpreter respectively to add or remove one indentation tab from subsequent lines. The `pgm` environment is defined for you in the preamble of the `template.tex` file.

Problem 2(d)

Problem 2(e)

Problem 2(f)

Problem 2(g)

Problem 2(h)

Problem 2(i)

See next page.