**Exercise 1**: Decide what the code fragment is trying to do, and how to fix the error so it performs the required task.

runexample.m:

A=rand(10,5); % creates a 10x5 matrix containing random numbers

rowsum=0;

for k=1:size(A,1),

rowsum=rowsum+A(:,k);

end;

>> runexample;

??? Attempted to access A(:,6); index out of bounds because size(A)=[10,5].

>> help rand

RAND Uniformly distributed pseudorandom numbers.

R = RAND(N) returns an N-by-N matrix containing pseudorandom values drawn

from the standard uniform distribution on the open interval(0,1). RAND(M,N)

or RAND([M,N]) returns an M-by-N matrix. RAND(M,N,P,...) or

RAND([M,N,P,...]) returns an M-by-N-by-P-by-... array. RAND returns a

scalar. RAND(SIZE(A)) returns an array the same size as A.

[...]

**Exercise 2:** This code is supposed to create a running standard deviation. Does it? If it doesn't, state why. If not, what is the problem?

runexample2.m:

X=rand(1,10)

for k=1:length(X),

Y(k)=std(X(max(1,k-3)):X(min(length(X),k+3)));

end;

>> runexample2;

X =

0.7513 0.2551 0.5060 0.6991 0.8909 0.9593 0.5472 0.1386 0.1493 0.2575

>> Y

Y =

NaN 0 0 NaN NaN NaN NaN NaN NaN NaN

>> help std

STD Standard deviation.

For vectors, Y = STD(X) returns the standard deviation. For matrices,

[...]

STD normalizes Y by (N-1), where N is the sample size. This is the

sqrt of an unbiased estimator of the variance of the population from

which X is drawn, as long as X consists of independent, identically

distributed samples.

**Exercise 3:** What do you see on the screen when you run this code (after fixing the error)?

runexample3.m:

x=5; i=3;

for j=1:5,

i=i-1;

if j=4,

x=x+4;

end;

end;

[i x-3]

>> runexample3

??? Error: File: runexample3.m Line:4 Column: 6

The expression to the left of the equals sign is not a valid target for an

assignment.

**Exercise 4:** What are the obvious (and not-obvious) errors here?

runexample4:

function b=runexample4(a,b);

a=invec;

b=sin(a);

>> c=runexample4(5);

??? Undefined function or variable 'invec'.

Error in ==> runexample3 at 3

a=invec;

**Exercise 5:** Here's a subtle syntax difficulty. Which of the two versions of runexample5 on the right gives which of the results on the left? And which version of runexample5 should you NOT use?

|  |  |
| --- | --- |
| >> c=runexample5(2,3)  c =  10 | function [c]=runexample5(a,b)  c=subfunc(5);  end  function d=subfunc(e)  d=a\*e;  end |
| >> c=runexample(2,3)  ??? Undefined function or variable 'a'.  Error in ==> runexample5>subfunc  d=a\*e;  Error in ==> runexample5 at 2  c=subfunc(5) | function [c]=runexample5(a,b)  c=subfunc(5);  function d=subfunc(e)  d=a\*e;  end  end |