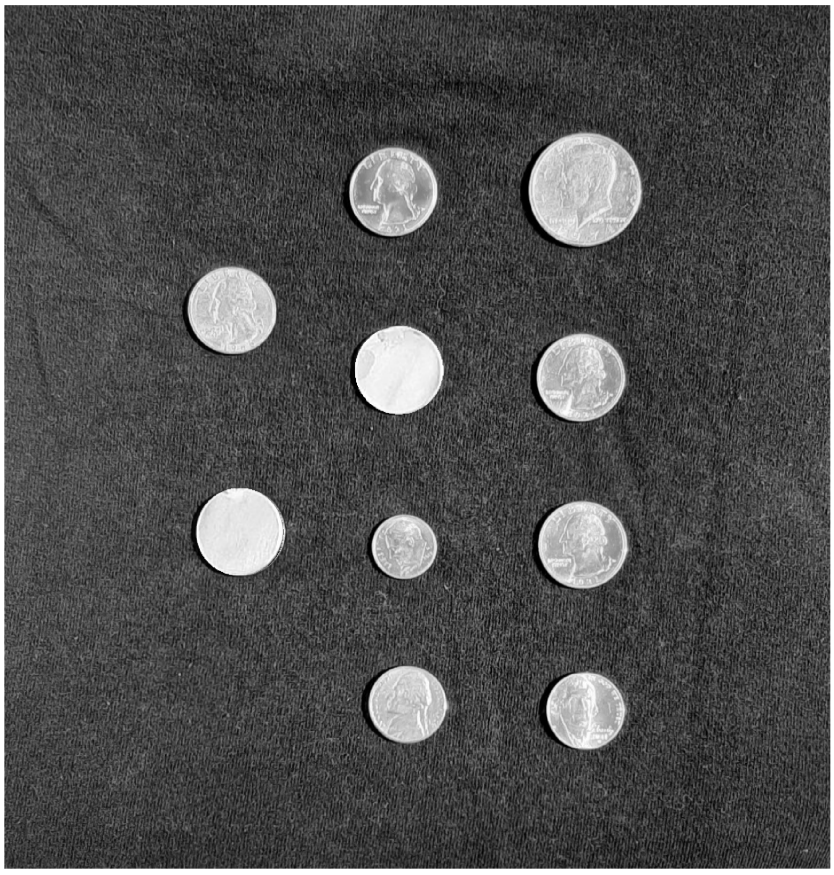
## Valid Coin Face Edges

For this problem your code will need to create a mask which only includes true pixels for all valid coin regions. That is, you need to end up with *true pixels in the interior of each valid coin, but nowhere else*. Use variable name **`faceEdgeMask`**.

One workflow to accomplish this is given below (see the project reading for more detials):

1. Use the **`edge`** function to create a binary image showing many edges on the coins, and few to no edges on the surface of the blanks. **NOTE:** The background of the original image is not smooth. Background edges could bias an automatically chosen edge threshold. You may find it advantageous to use the masked foreground image for your edge calculations.
2. Eliminate the pixels in the edge mask other than those in the valid coins. Remember, you should have true pixels in your edge mask distributed into the center of the coins, while you have no true pixels other than near the outer rim of the blanks. Logically combining your edge mask with an eroded version of your foreground segmentation mask should leave you with only the edges closer to the coin centers.

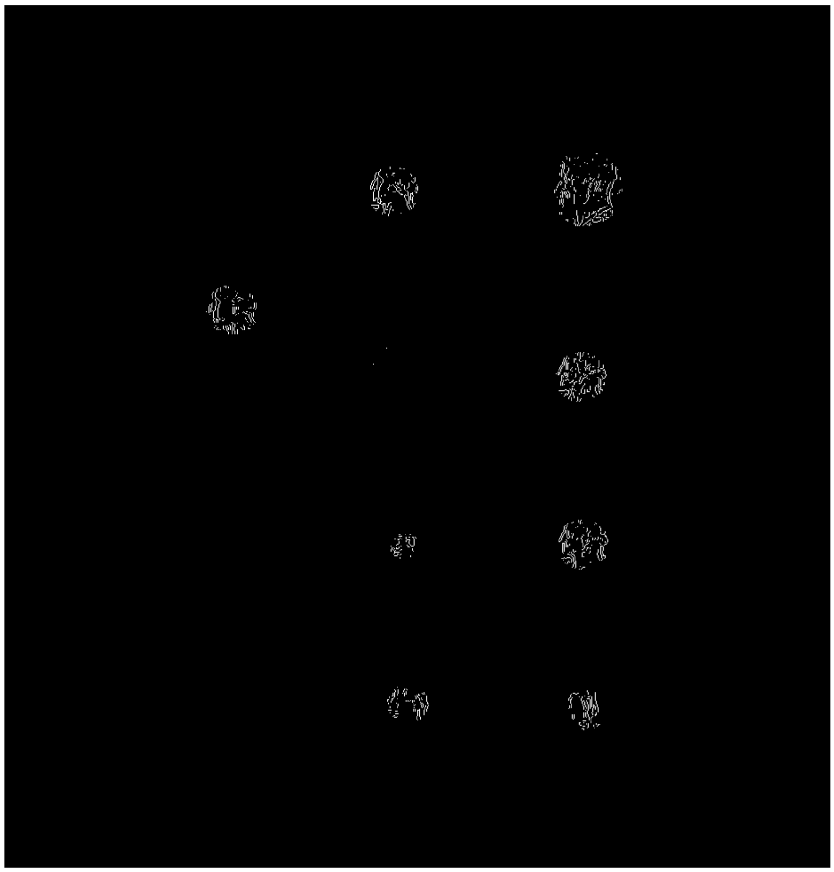
```
testCoinImage = imread("testCoinImage3.png");
imshow(testCoinImage)
```



```
[testcoinMask,MaskedtestCoin] = segmentCoin(testCoinImage);
```

```
% Shrink the coin mask.
se = strel('disk', 20, 0);
testcoinMask = imfill(testcoinMask, 'holes'); % Fill any holes in it.
testcoinMask = imerode(testcoinMask, se); % Shrink by 3 layers of pixels.

% Find edges using original poster's code.
imgFilt = imgaussfilt(MaskedtestCoin,0.5,...
    Padding="circular",FilterDomain="frequency",FilterSize=3);
faceEdgeMask = edge(imgFilt,"sobel",0.05,"both");
% Erase outside the shrunken coin mask to get rid of outer boundary.
faceEdgeMask(~testcoinMask) = false;
imshow(faceEdgeMask);
```



```
function [testcoinMask,MaskedtestCoin] = segmentCoin(X)
%segmentImage Segment image using auto-generated code from Image Segmenter app
%  [BW,MASKEDIMAGE] = segmentImage(X) segments image X using auto-generated
%  code from the Image Segmenter app. The final segmentation is returned in
%  BW, and a masked image is returned in MASKEDIMAGE.

% Auto-generated by imageSegmenter app on 31-Dec-2022
```

```
%---------------------------------------------------
X = im2gray(X);

% Threshold image - manual threshold
testcoinMask = im2gray(X) > 200;

% Close mask with default
radius = 12;
decomposition = 4;
se = strel('disk', radius, decomposition);
testcoinMask = imclose(testcoinMask, se);

% Create masked image.
MaskedtestCoin = X;
MaskedtestCoin(~testcoinMask) = 0;
end
```