

Cody Problem 74. Balanced number

Given a positive integer find whether it is a balanced number. For a balanced number the sum of first half of digits is equal to the second half.

Examples:

```
% Input  n = 13722
% Output tf is true
```

because $1 + 3 = 2 + 2$.

```
% Input  n = 23567414
% Output tf = true
```

Scratch Pad

```
n = 13722;

isBalanced(n)
```

```
ans = logical
     1
```

```
n = 23567414;

isBalanced(n)
```

```
ans = logical
     1
```

```
n = 215512;

isBalanced(n)
```

```
ans = logical
     1
```

Solution

```
function tf = isBalanced(n)
    % Convert the number to a string
    firstHalfStr = '';
    lastHalfStr = '';
    numStr = num2str(n);
    strLength = length(numStr);
    if mod(strLength, 2) == 0
        splitIndex = strLength/2;
        % Split the string into two parts
```

```

        firstHalfStr = numStr(1:splitIndex);
        lastHalfStr = numStr(splitIndex+1:end);
    else
        splitIndex = (strLength + 1)/2;
        % Split the string into two parts
        firstHalfStr = numStr(1:splitIndex-1);
        lastHalfStr = numStr(splitIndex+1:end);
    end
    firstHalfSum = 0;
    lastHalfSum = 0;
    for i = 1:length(lastHalfStr)
        firstHalfSum = firstHalfSum + str2double(firstHalfStr(i));
        lastHalfSum = lastHalfSum + str2double(lastHalfStr(i));
    end
    if firstHalfSum == lastHalfSum
        tf = true;
    else
        tf = false;
    end
end
end

```