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MATLAB

Unit 6-Lecture 25

Other flow structure

BTech (CSBS) -Semester VII

11 October 2022, 09:35AM

*few figures/content have been prepared/referred from internet source/books

Control Flow and Operators

1) relational and logical operators
2) “if ... end" structure
3) “for ... end" loop
4) “while ... end" loop
5) other flow structures
6) operator precedence
7) saving output to a file

Other flow structures

Repeat Statements Until Expression Is False

Use a `while` loop to calculate `factorial(10)`.

```
n = 10;
f = n;
while n > 1
    n = n-1;
    f = f*n;
end
disp(['n! = ' num2str(f)])
```

```
n! = 3628800
```

% num2str - converts numeric array to character array

Switch,case, otherwise

Syntax

```
switch switch_expression
   case case_expression
      statements
   case case_expression
      statements
    ...
   otherwise
      statements
end
```

Description

`switch` *switch expression*, `case` *case expression*, `end` evaluates an expression and chooses to execute one of several groups of statements. Each choice is a case.

The `switch` block tests each case until one of the case expressions is true. A case is true when:

- For numbers, *case expression* == *switch expression*.
- For character vectors, `strcmp(`*case_expression*,*switch_expression*`) == 1`.

Example

Compare Single Values

Display different text conditionally, depending on a value entered at the command prompt.

```
n = input('Enter a number: ');

switch n
    case -1
        disp('negative one')
    case 0
        disp('zero')
    case 1
        disp('positive one')
    otherwise
        disp('other value')
end
```

At the command prompt, enter the number 1.

```
positive one
```

Repeat the code and enter the number 3.

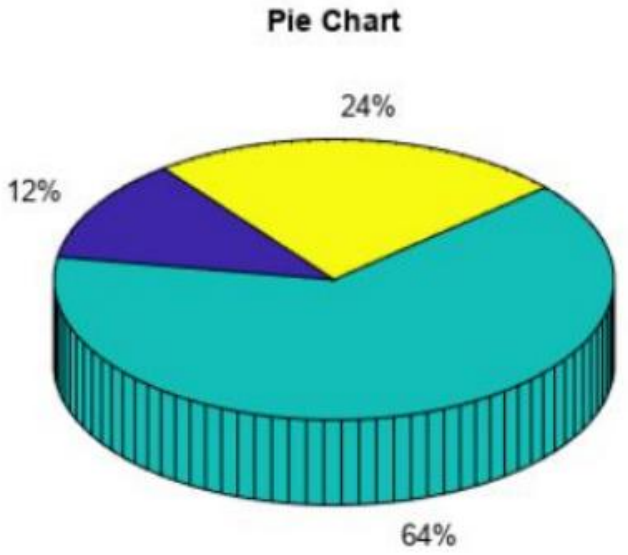
```
other value
```

Compare against multiple value

Determine which type of plot to create based on the value of `plottype`. If `plottype` is either `'pie'` or `'pie3'`, create a 3-D pie chart. Use a cell array to contain both values.

```
x = [12 64 24];
plottype = 'pie3';

switch plottype
    case 'bar'
        bar(x)
        title('Bar Graph')
    case {'pie','pie3'}
        pie3(x)
        title('Pie Chart')
    otherwise
        warning('Unexpected plot type. No plot created.')
end
```



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