# Methods:
# Lessons from Apollo 13

Video

Watch the video, answer this **special bonus question**:
One of the actors in this clip is a prominent person in a sports related movie.  Name the sports movie.
Hint: He has a distinct voice.

# What we can learn from Apollo 13?

- BOOSTER
- CAPCOM
- EECOM
- FIDO
- FAO
- NETWORK
- RECOVERY
- RETRO
- CONTROL
- FLIGHT
- SURGEON
- PAO
- GUIDANCE
- GNC
- INCO
- TELMU

# Standard Interfaces

# Dice Rolling Program

- 3 dice, score is sum of dice
- Change score to 1*die1 + 2*die2 + 3*die3
- Display score in red if below 18, blue if above
- Display words for dice values instead of numbers

Start your worksheet

# Methods:
# Doing something more than once

- Simple method **declaration syntax**:

```
private void <identifier>()
{
    <statements>
}
```

*a.k.a Functions, subroutines, subprograms*

# Methods:
# Doing something more than once

- Method **call syntax**:

  <identifier>**();**

# Example 1

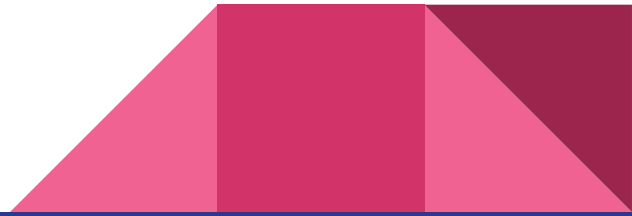
```
private void AddBonus()
{
   score += 25;
   textScore.Text = "Score: "+ score;
   textMessage.Text = "Bonus!";
}
```

```
dice1 = random.Next(1,7);
if (dice1 == dice2 &&
     dice2 == dice3)
{
   AddBonus();
}
```

# Example 2

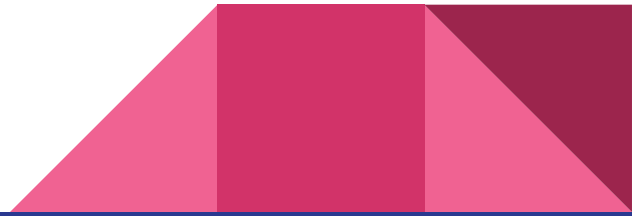
```
private void EndGame()
{
   buttonGuess.IsEnabled = false;
   textMessage.Text = "Game Over!";
}
```

```
rollsLeft --;
if (rollsLeft == 0)
{
   EndGame();
}
```



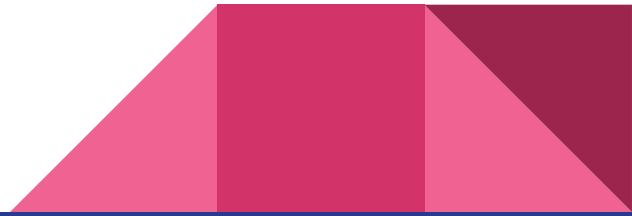
# Rules for Method Names - Syntax

- Naming **Syntax** (will cause errors if you don't follow)
  - Identifiers can contain letters, numbers, and underscore (_)
  - Can't start with a number or contain spaces or special characters
  - Case matters!  (MyMethod is not the same as mymethod)



# Rules for Method Names - Convention

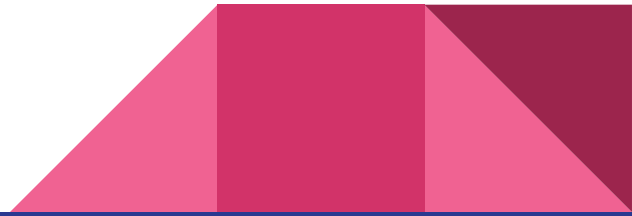
- Naming **Convention** (will cause confusion if you don't follow)
  - Name should indicate what the method is doing (meaningful—start with a verb)
  - "**PascalCase**": start with capital letter, then each subsequent word starts with a capital letter (C#)



# Methods are like mini-programs (input➜processing➜output)

- Complete method **declaration syntax**:

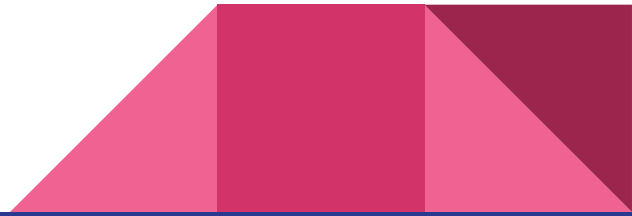
```
private <return type> <identifier> (<optional parameter list>)
{
    <statements>
}
```



# Methods are like mini-programs (input➜processing➜output)

- Method **call syntax**:

  <identifier>**(**<argument list>**);**

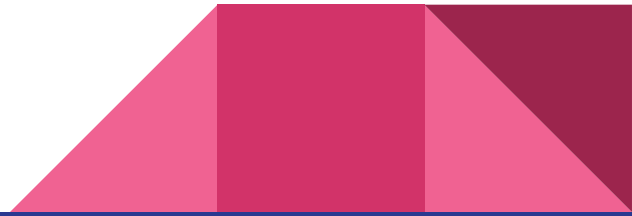


# Example 3

```
private int CalculateArea(int length, int width)
{
   int area = length * width;
   return area;
}
```

```
int side1 = 5;
int side2 = 7;
area = CalculateArea(side1, side2);
```

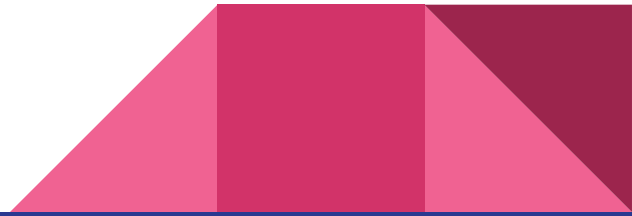
```
int area = CalculateArea(5, 7);
```



# Example 4

```
private int ConvertToCelsius(int fahrenheit)
{
   return (fahrenheit - 32) * 5 / 9;
}
```

```
celsius = ConvertToCelsius(32);
```



# Example 5

```
private bool AreSame(int d1, int d2, int d3, int d4)
{
   if (d1 == d2 && d2 == d3 && d3 == d4)
   {
      return true;
   }
   return false;
}
```

```
if (AreSame(2, 3, 2, 3))
{
   AddBonus();
}
```

# Get to Work

- Pass off the worksheet
- Assignment 3: Tic-Tac-Toe