Types of functions

(with functions review)

What is a function?

What is a function?

Functions are separated pieces of code we can use in our main program

Why do we use functions?

Why do we use functions?

- 1. So you don't have to repeat code
- 2. To make code easier to understand
- 3. To make tools to do common tasks

There are three types of functions

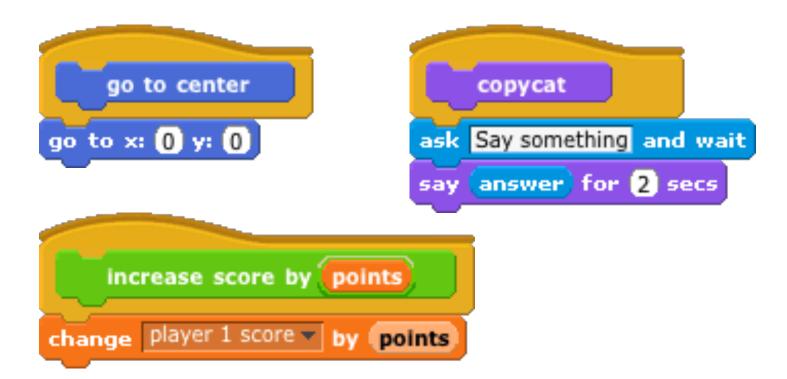


reporter functions

predicate functions



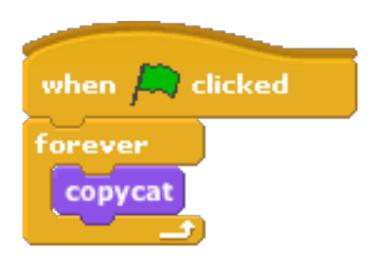
Command functions do things





Little sibling sprite





reporter functions

Reporter functions give you a value

```
report

square value

report value * value

random letter

set letter code v to

pick random ascii code of a to ascii code of 2

report ascii letter code as letter
```

reporter functions

They can report information about the environment too

```
distance to x y

set x difference v to x position - x

set y difference v to y position - y

report sqrt of x difference * x difference + y difference * y d
```

reporter functions

Reporter functions are often used to set variables or in comparisons

```
when clicked

set pen size to 30

forever

glad to random

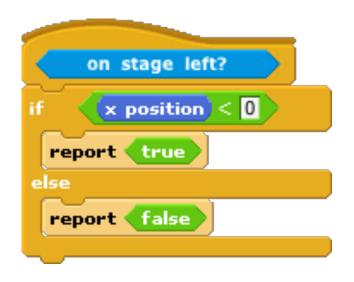
if distance to 0 0 < 100

pen down

pen up
```

predicate functions

Predicate functions give you a boolean



```
below sprite ?

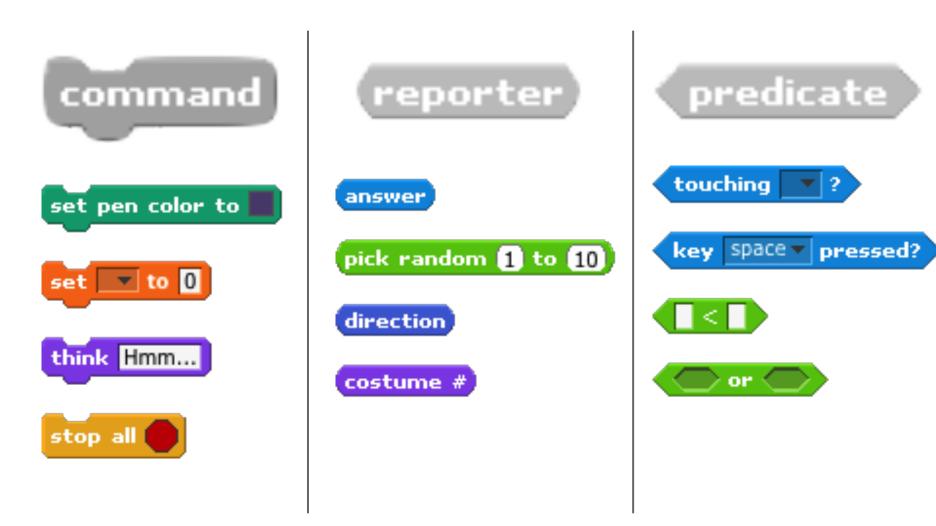
report y position < y position ▼ of sprite
```

predicate functions

Predicate functions are often used in if statements

```
when 🧢 clicked
forever
        below object ball v
 if
    change y by 1
                             below (sprite)?
                               y position < y position ▼ of sprite
```

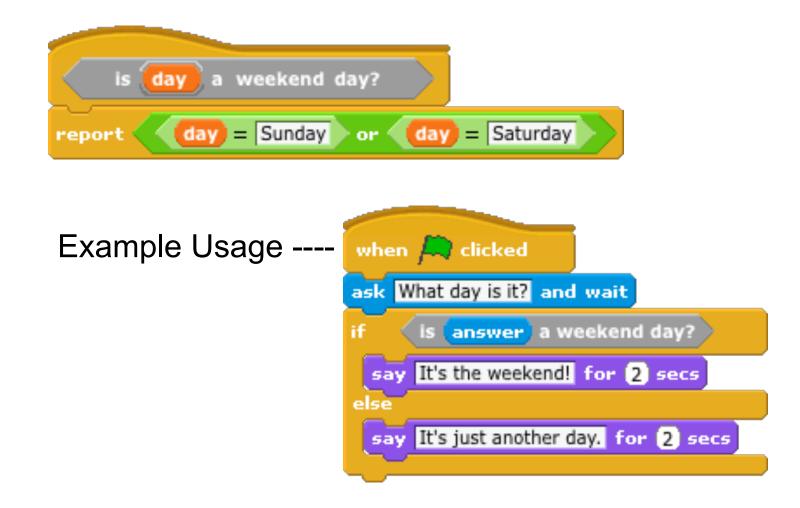
You've already been using these types!



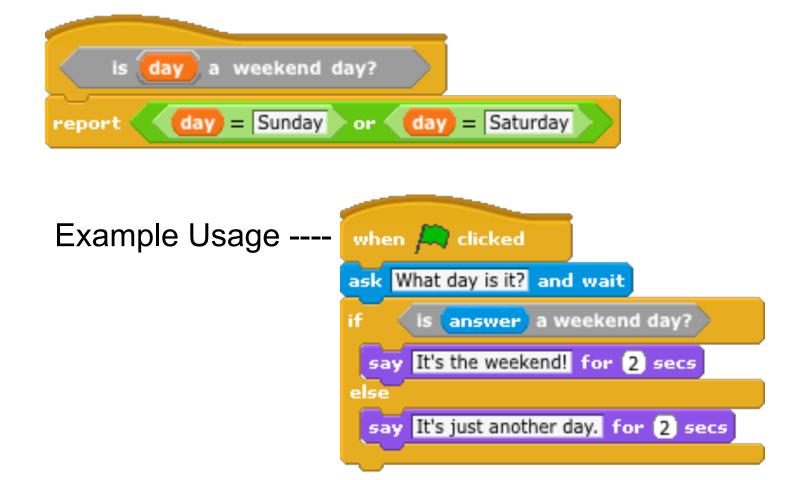
Hold up fingers to say which type you think each function is

- 1 Finger for Command
- 2 Fingers for Reporter
- 3 Fingers for Predicate

1: Command, 2: Reporter, 3: Predicate



3: Predicate



1: Command, 2: Reporter, 3: Predicate



2: Reporter



1: Command, 2: Reporter, 3: Predicate

```
draw dot with size size and color color

set pen size to size

set pen color to color

pen down

pen up
```

1: Command

```
draw dot with size size and color color

set pen size to size

set pen color to color

pen down

pen up
```

1: Command, 2: Reporter, 3: Predicate

mouse down?

3: Predicate

mouse down?

1: Command, 2: Reporter, 3: Predicate

A function that decides if you entered your phone password correctly



3: Predicate

A function that decides if you entered your phone password correctly



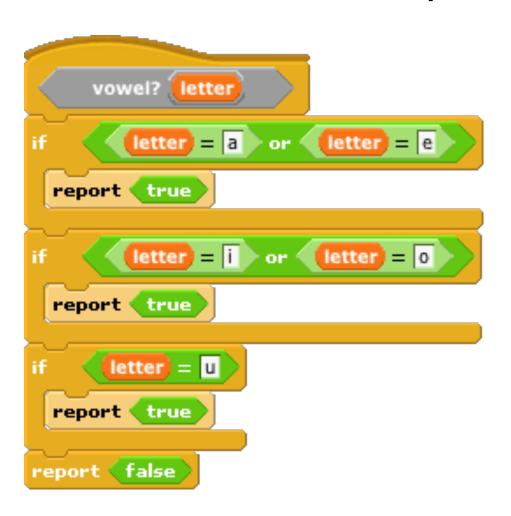
1: Command, 2: Reporter, 3: Predicate

pick random (1) to (10)

2: Reporter

pick random 1 to 10

1: Command, 2: Reporter, 3: Predicate



Example Usage

```
when clicked

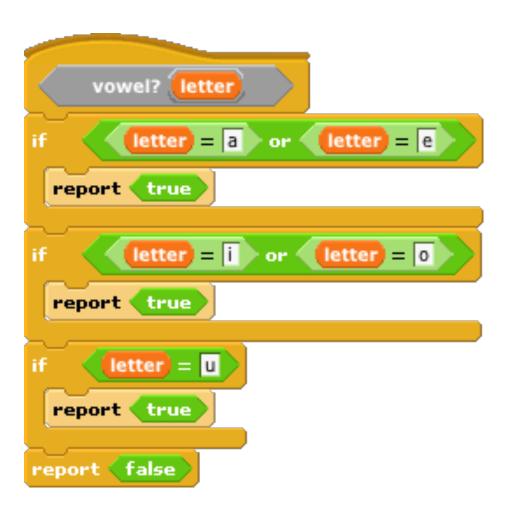
ask Enter a letter and wait

if vowel? answer

say That's a vowel! for 2 secs
else

say That's a consonant! for 2 secs
```

3: Predicate



Example Usage

```
when clicked

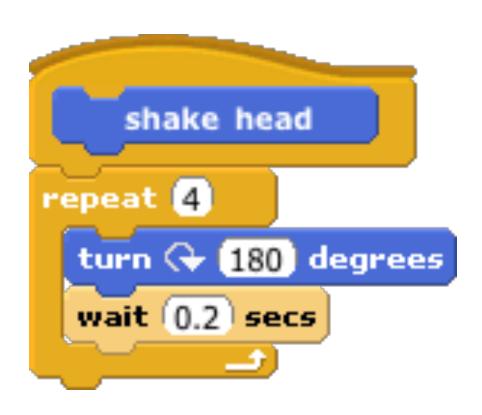
ask Enter a letter and wait

if vowel? answer

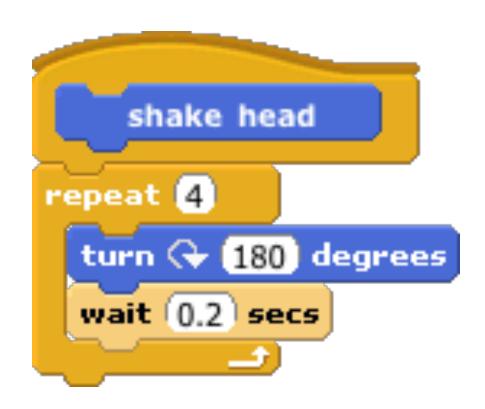
say That's a vowel! for 2 secs
else

say That's a consonant! for 2 secs
```

1: Command, 2: Reporter, 3: Predicate



1: Command



1: Command, 2: Reporter, 3: Predicate

change size by 10

1: Command

change size by 10

1: Command, 2: Reporter, 3: Predicate



2: Reporter



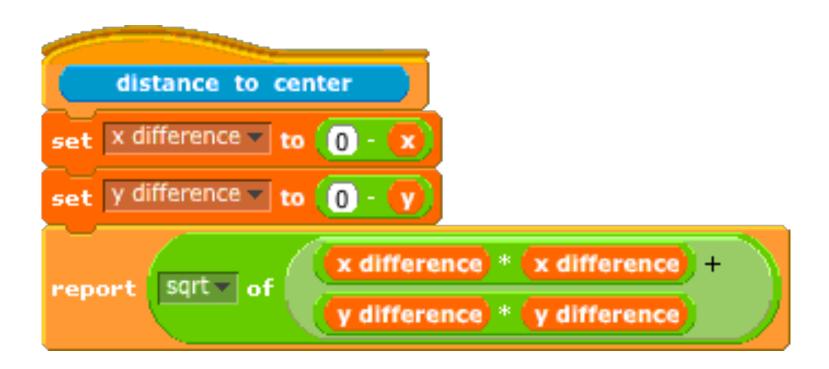
1: Command, 2: Reporter, 3: Predicate



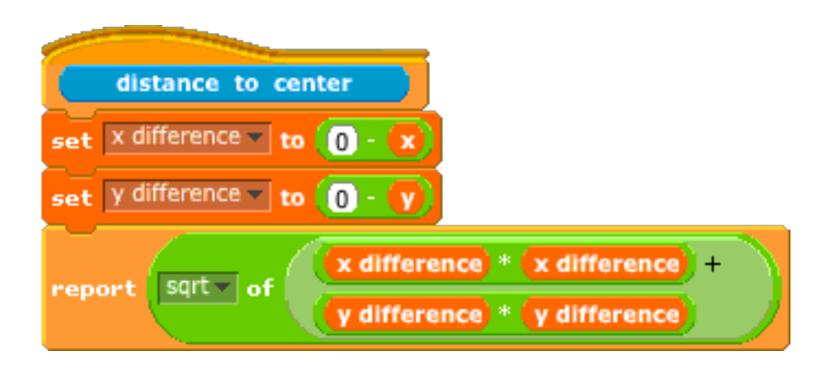
3: Predicate



1: Command, 2: Reporter, 3: Predicate



2: Reporter



What types of functions do you have in your project?

command

functions

reporter

functions

predicate functions