

Praktikum Entwicklung von Mediensystemen mit iOS

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Today

- Assignment 2
- More iOS:
 - Text and touch input
 - Accelerometer
 - Animations and drawing
- Assignment 3
- Outlook

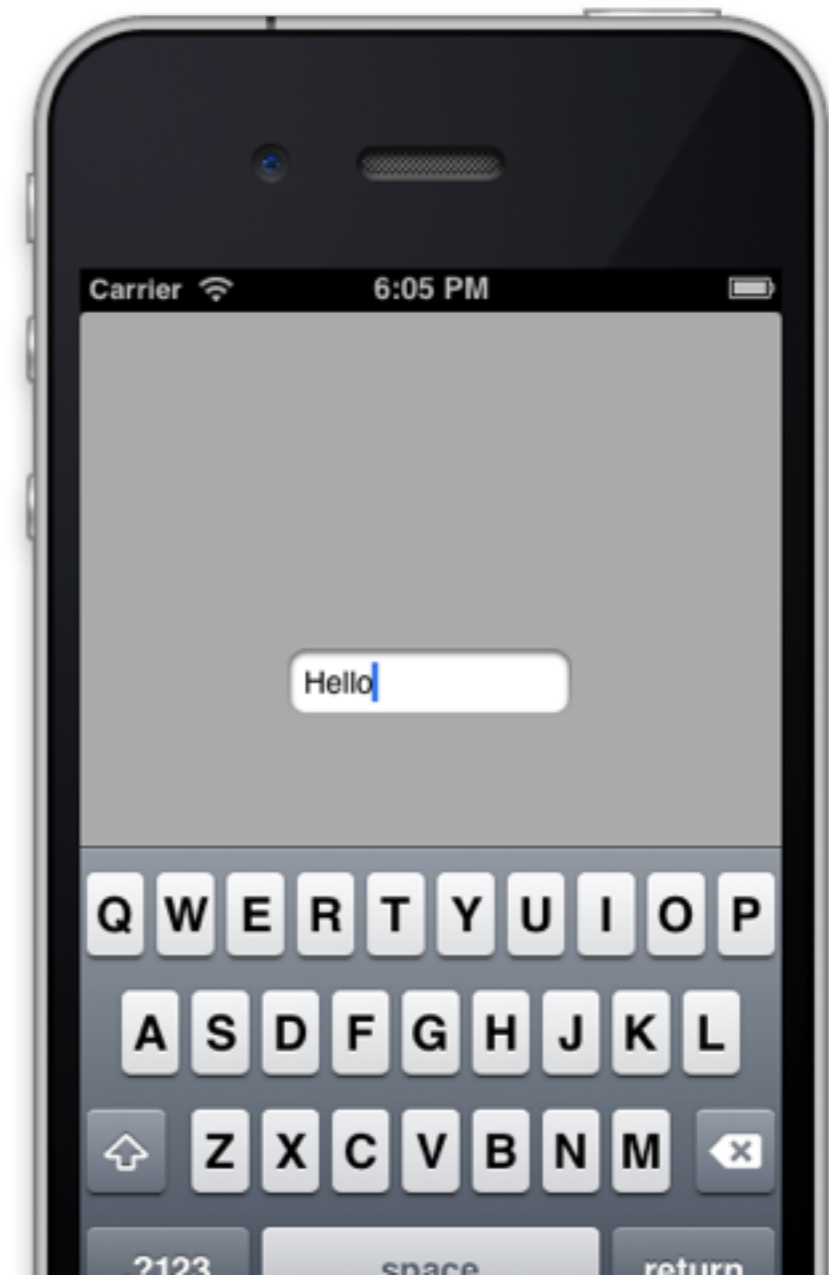
Text Input

- UITextField
- Requires UITextFieldDelegate
- Process text input:

```
// dismiss keyboard
-(BOOL)textFieldShouldReturn:(UITextField *)textField {
    // calls textFieldShouldEnd where you can check
    // for invalid input
    [textField resignFirstResponder];
    return YES;
}

// get text input
-(void)textFieldDidEndEditing:(UITextField *)textField {
    NSString* textInput = textField.text;
}
```

- Use UITextView for multiple lines of text



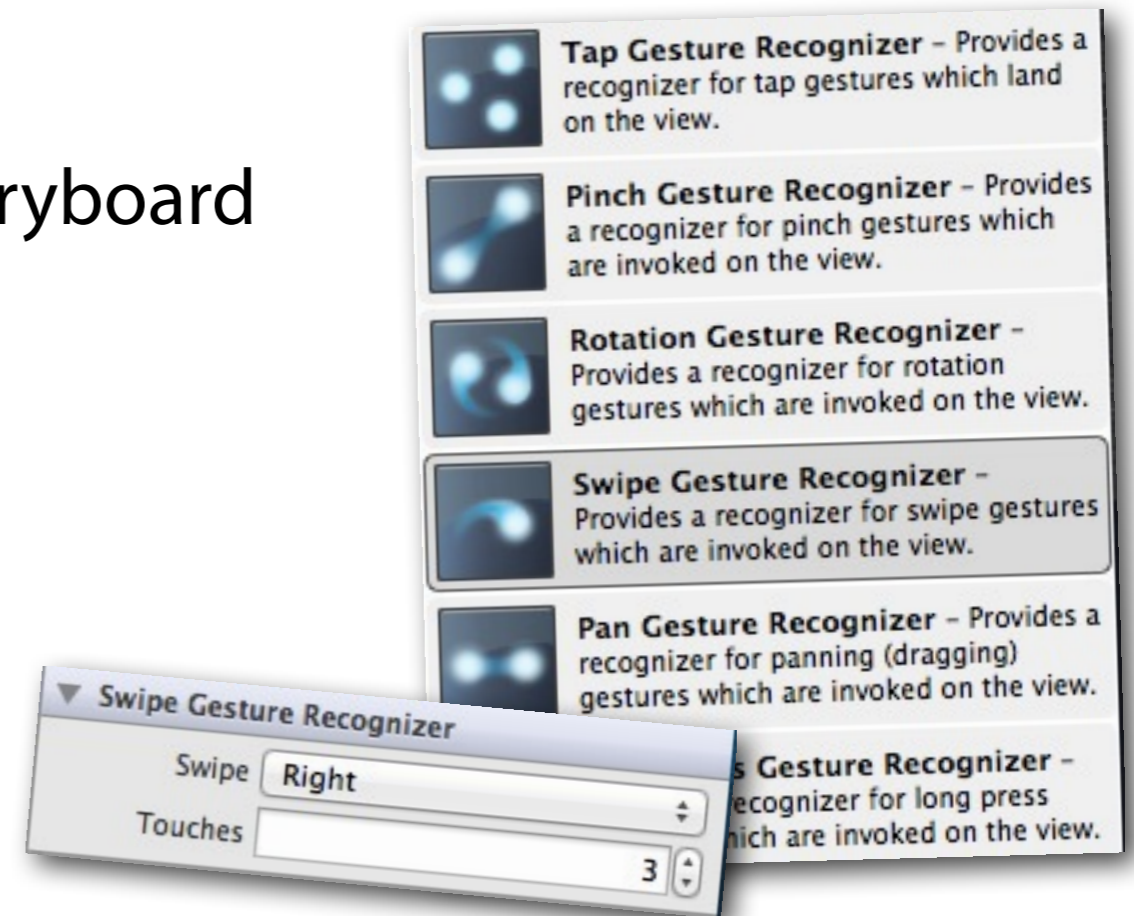
Touch Input

- Use gesture recognizers
 - Init in View Controller or add in Storyboard
 - Create IBAction:

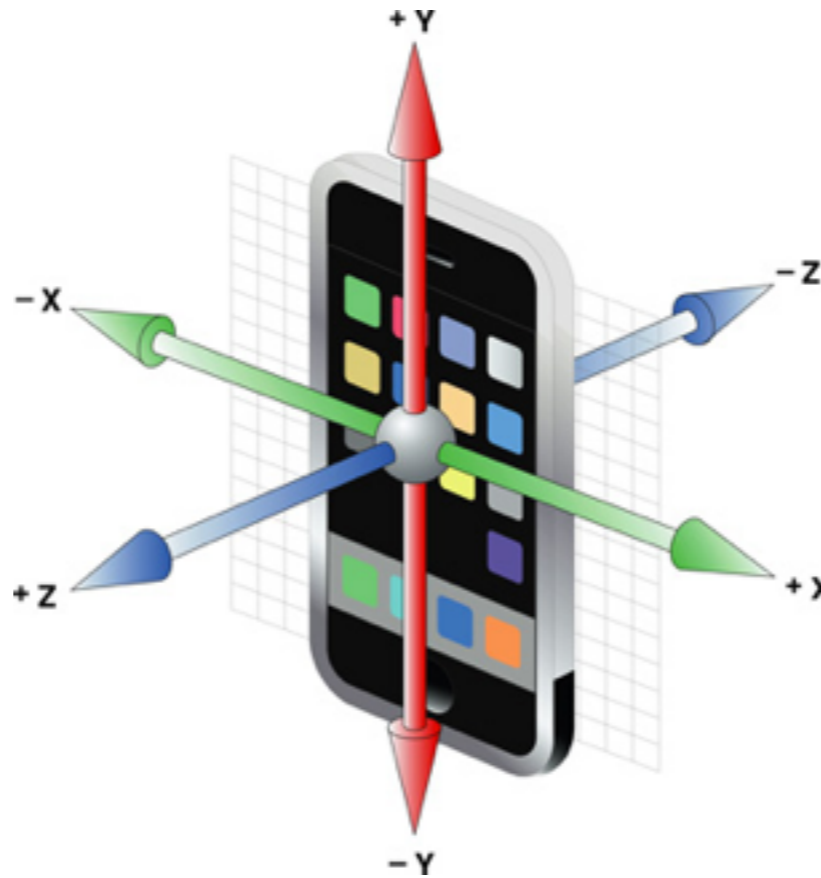
```
- (IBAction)swipeRecognized:(id)sender {  
    // handle gesture  
}
```

- Use touches methods, e.g.:

```
-(void)touchesBegan:(NSSet *)touches withEvent:(UIEvent *)event {  
    UITouch *touch = [touches anyObject];  
    CGPoint p = [touch locationInView:self.view];  
    // Use p.x and p.y  
}
```



Accelerometer



- g -force values for x , y , z ($1g$ = normal acceleration caused by gravity)
- Access accelerometer by singleton object (requires Delegate)

```
[[UIAccelerometer sharedAccelerometer] setDelegate:self];
```

Accelerometer

- Get sensor data via Delegate method:

```
- (void)accelerometer:(UIAccelerometer *)accelerometer didAccelerate:  
(UIAcceleration *)acceleration {  
    NSLog(@"x acceleration is %d", acceleration.x);  
}
```

- Detect device orientation: Low-pass filter removes instant motion.
- Detect instant motion (e.g. shaking): High-pass filter removes gravity component.



Location

- CLLocationManager
- Configuration (requires Delegate):

```
#import <CoreLocation/CoreLocation.h>
```

```
CLLocationManager *locationManager = [[CLLocationManager alloc] init];  
[locationManager setDesiredAccuracy:kCLLocationAccuracyBest];  
[locationManager setDelegate:self];  
[locationManager startUpdatingLocation];
```

- Get location data via Delegate method:

```
- (void)locationManager:(CLLocationManager *)manager didUpdateLocations:(NSArray *)locations  
    // Use locations to get longitude and latitude  
}  
  
- (void)locationManager:(CLLocationManager *)manager didExitRegion:(CLRegion *)region  
- (void)locationManager:(CLLocationManager *)manager didEnterRegion:(CLRegion *)region
```

Animations - Example



Sliding Sam

Animations

- Views can fly around, rotate, fade in/out and much more.
- Animations can make your app appear much more exciting.
- The following properties of the UIView class are animatable:
 - @property frame
 - @property bounds
 - @property center
 - @property transform
 - @property alpha
 - @property backgroundColor
 - @property contentStretch



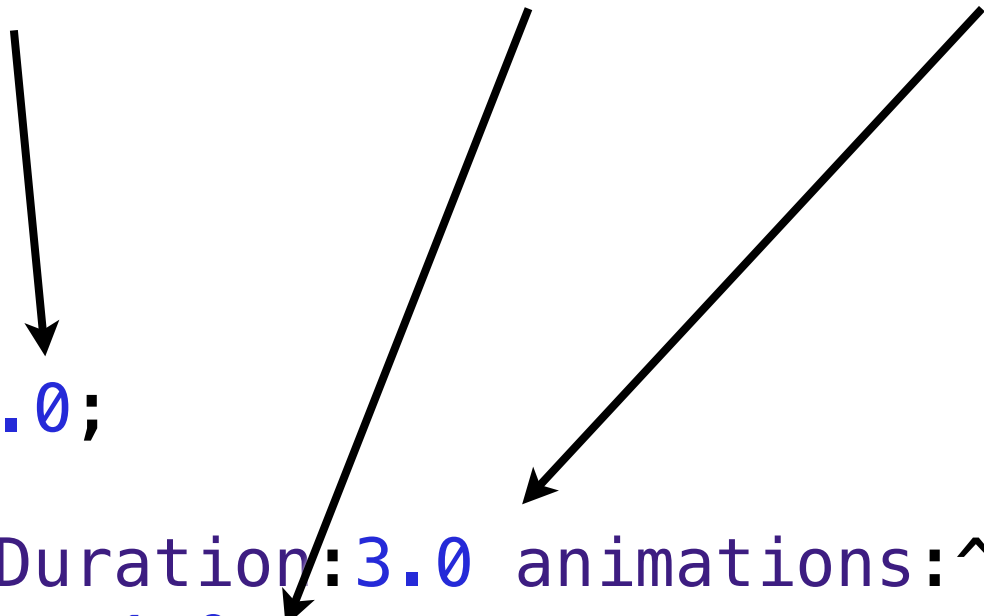
Example



Fade In / Out

- Change alpha from 0 (transparent) to 1 (opaque) in 3 seconds:

```
imageView.alpha = 0.0;  
[UIView animateWithDuration:3.0 animations:^(  
    imageView.alpha = 1.0;  
)];
```

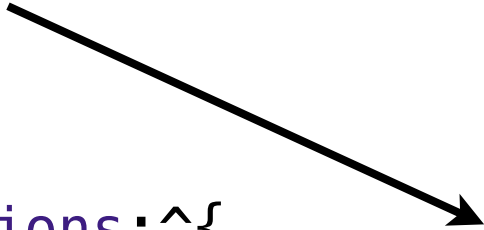


- This [Block](#) syntax makes your code easier to read. You don't have to memorize it - code completion is your friend :-)

Rotate

- Rotate by 90° in 3 seconds:

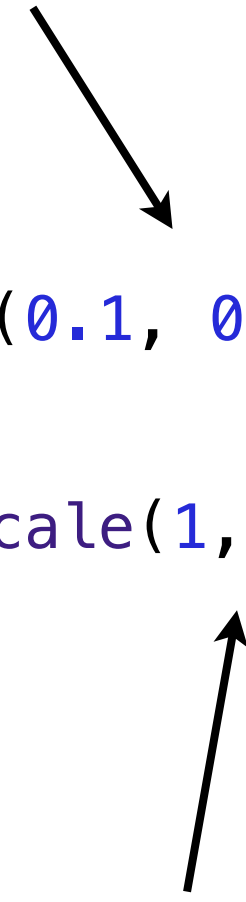
```
[UIView animateWithDuration:3.0 animations:^(  
    imageView.transform = CGAffineTransformMakeRotation(M_PI_2);  
)];
```



Scale

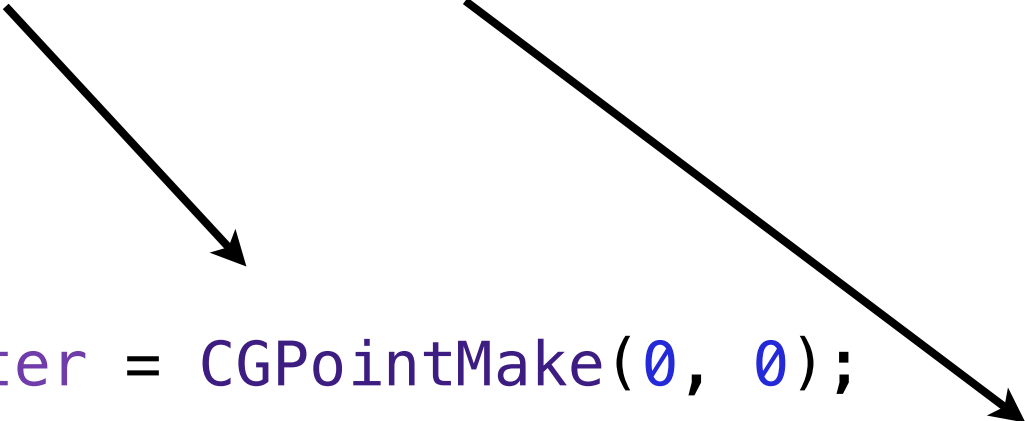
- Scale from 10% to 100% in 3 seconds:

```
imageView.transform = CGAffineTransformMakeScale(0.1, 0.1);  
[UIView animateWithDuration:3.0 animations:^(  
    imageView.transform = CGAffineTransformMakeScale(1, 1);  
)];
```



Move

- Move from origin to center:



```
imageView.center = CGPointMake(0, 0);
```

```
[UIView animateWithDuration:3.0 animations:^(  
    imageView.center = imageView.superview.center;  
)];
```

Animation Options

- Multiple animations at once are possible
- Options examples:
 - `UIViewAnimationOptionCurveEaseInOut`:
start slowly, accelerate, stop slowly
 - `UIViewAnimationOptionTransitionFlipFromLeft`:
flip around vertical axis
- Completion examples:
 - Start another animation
 - Play sound

A white rectangular sticker with a black border and a slight shadow, tilted slightly to the right. It contains the word "Uberfresh!" in a black, sans-serif font.

Drawing

- Instead of using PNGs, you can draw custom shapes with CoreGraphics (a.k.a. CG or Quartz 2D).
- Example with drawRect:

```
@interface CustomShape : UIView .h  
- (void)drawRect:(CGRect)rect .m  
{  
    CGContextRef context = UIGraphicsGetCurrentContext();  
    CGContextSetFillColorWithColor(context, [UIColor redColor].CGColor);  
    CGContextFillEllipseInRect(context, rect);  
}
```


Drawing

- Core Graphics also supports shadows, gradients, layers etc. ([documentation](#))
- Image filters à la Instagram can be done with Core Image ([documentation](#))
- 3D drawing can be done with OpenGL ([documentation](#))



Assignment 3

- Do 2 out of 4 programming tasks
(choose whichever interests you most)
- Due next Wednesday (6.11. 12:00), upload to Uniworx
- For the project phase, form teams of four

Outlook

- 30.10. (today): Assignment 3 is the last one
- 6.11. (next week): Start of team projects (Brainstorming)
- 13.11.: Present your app idea

- Questions?
- Problems with certificate request, provisioning profiles?