



Yesod Introduction

Jiang Wu

Install

- ✓ `apt-get install yesod`
- ✓ `cabal install yesod`
- ✓ Latest Version: 1.2
- ✓ Debian Wheezy: 1.0

Why Yesod?



- ✓ Type Safety
- ✓ Concise
- ✓ Performance
- ✓ Asynchronous

Hello World



```
{-# LANGUAGE TypeFamilies, QuasiQuotes,  
MultiParamTypeClasses,  
TemplateHaskell, OverloadedStrings #-}  
  
import Yesod  
  
data HelloWorld = HelloWorld  
  
mkYesod "HelloWorld" [parseRoutes|  
/ HomeR GET  
|]  
  
instance Yesod HelloWorld  
  
getHomeR :: Handler RepHtml  
getHomeR = defaultLayout [whamlet|Hello World!|]  
  
main :: IO ()  
main = warp 3000 HelloWorld
```

MVC



- ✓ M - Haskell Model
- ✓ V - Hamlet/Lucius/Julius
- ✓ C - Handler

Hamlet

```
{-# LANGUAGE QuasiQuotes #-}

import Text.Hamlet (shamlet)
import Text.Blaze.Renderer.String (renderHtml)

data Person = Person
    { name :: String,
      age :: Int
    }

main :: IO ()
main = putStrLn $ renderHtml [shamlet|
<p> Hello, my name is #{name person} and I am #
    #{show $ age person}
|]
    where
        person = Person "Michael" 26
```

Component of Widget (1)

- ✓ The title
- ✓ External stylesheets
- ✓ External Javascript

Component of Widget (2)

- ✓ CSS declarations
- ✓ Javascript code
- ✓ Arbitrary `<head>` content
- ✓ Arbitrary `<body>` content

Routes



```
mkYesod "Links" [parseRoutes |  
/ HomeR GET  
/blog BlogR GET POST  
/blog/#BlogId BlogPostR GET POST  
/year/#Int/month/#Text/day/#Int DateR GET  
|]
```

Handler

- ✓ render widget
- ✓ add response headers
- ✓ modify user's session
- ✓ short-circuiting: redirect, send file, error page

Form

- ✓ render to html
- ✓ parse request
- ✓ validation

Persistent



```
mkPersist sqlSettings [persist|  
Person  
  name String  
  age Int  
|]
```

Generated Code



```
data Person = Person {  
    namePerson :: String,  
    nameAge   :: Int  
}  
  
type PersonId = Key SqlPersist Person
```

Backends



- ✓ postgresql
- ✓ sqlite3
- ✓ mongodb
- ✓ mysql (experimental)

Authentication



provided by yesod-auth

- ✓ official: Email, BrowserId, GoogleEmail, OpenId
- ✓ 3rd party: LDAP, OAuth, Facebook

Authorization



provided by yesod-core

- ✓ `authRoute`
- ✓ `isAuthorized`
- ✓ `isWriteRequest`

Session



- ✓ save in cookie, limited size
- ✓ encrypted and signed, very safe

Scaffold



- ✓ cabal install yesod-bin (1.2)
- ✓ yesod init

Example: Blog



Thanks!



Questions?