



# TASK MADNESS

## ON DEMAND PROCESSING WITH SPRING CLOUD TASK

# WHO ARE WE?



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**MICHAEL MINELLA**  
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@OffHeap  
Github: mminella  
<https://www.spring.io>



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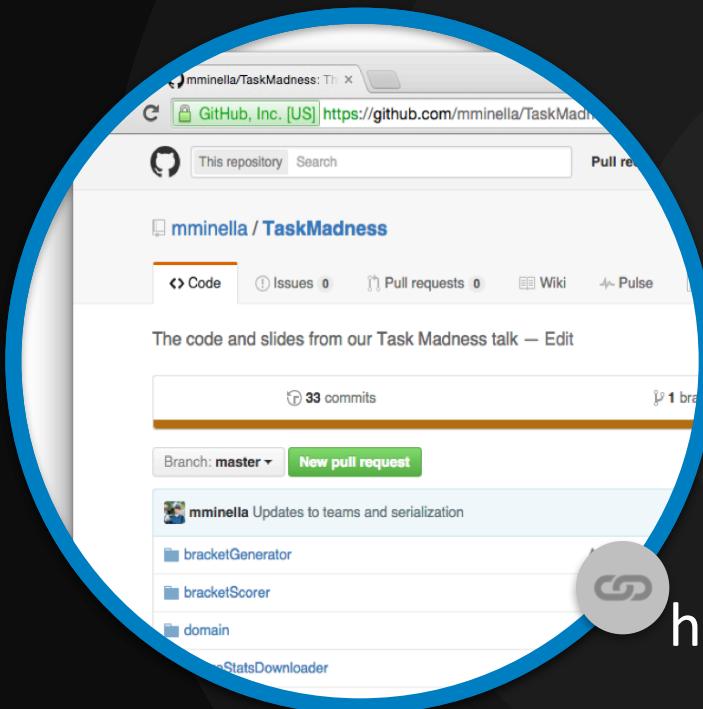
**GLENN RENFRO**  
@cppwfs  
Github: cppwfs  
<https://www.spring.io>

# Build Something Meaningful

Tackle the most challenging problems and build technologies that have real impact.

[DISCOVER LIFE AT PIVOTAL](#)

# CODE IS ON GITHUB



<https://github.com/mminella/TaskMadness>



PLEASE ASK  
QUESTIONS



**QUICK  
POLL**





# NCAA MEN'S BASKETBALL TOURNAMENT

\$240 Million  
vs  
\$1.15 Billion

\$2 Billion+

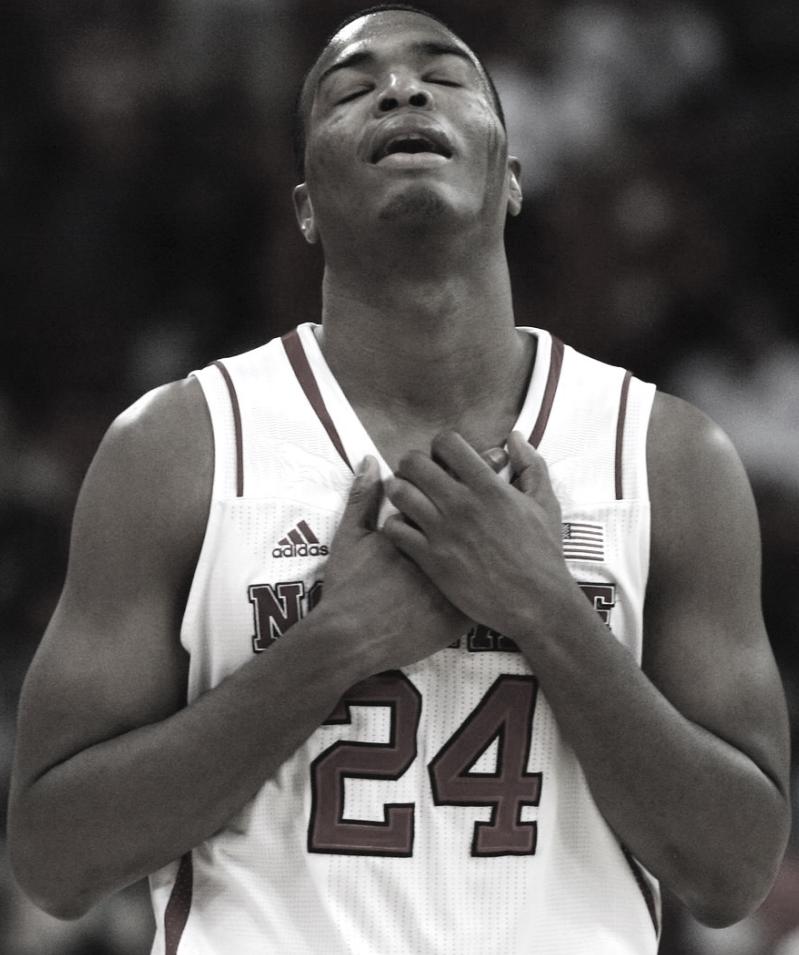
11 Million



# ABOUT THE TOURNAMENT



**64**  
**TEAMS**



SINGLE  
ELIMINATION

# TEAMS ARE SEEDED



## NCAA TOURNAMENT BRACKET 2009

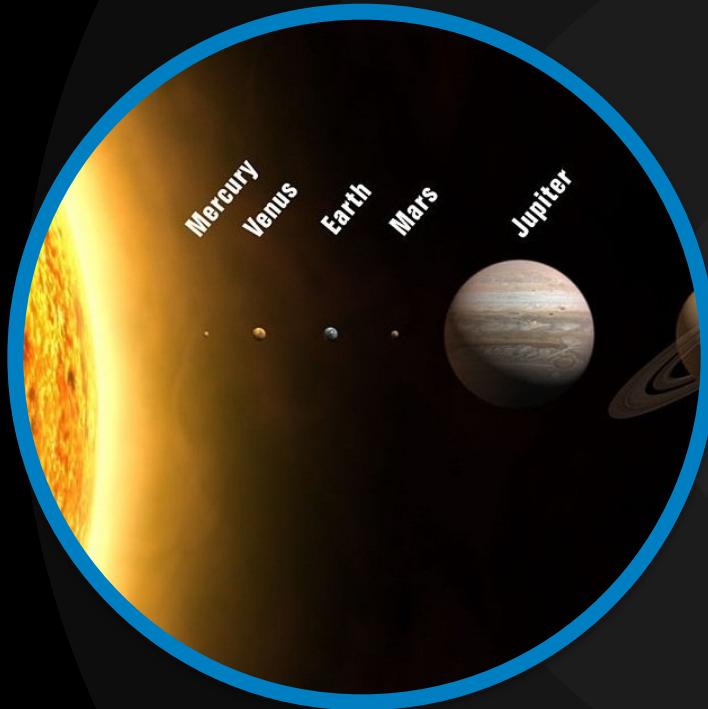




GAMBLING  
BASED ON  
BRACKETS



PICK  
A PERFECT  
BRACKET...  
EASY RIGHT?



1 IN  
9.2 QUINTILIAN



NOT  
PERFECT  
JUST  
GOOD  
ENOUGH

# WHAT IS “GOOD ENOUGH”?



# ESPN SCORING RULES



## NCAA TOURNAMENT BRACKET

2009

DETROIT April 6  
Memphis  
CHAMPION

DETROIT April 4  
UNC

PRESENTED BY  
**VIESA**  
Panasonic Ideas for Life

# 2015 March Madness Bracket



**PERFECT  
BRACKET IS  
1920**





**WINNER  
SCORED 1830**

## OVERALL LEADERBOARD

### RANK BRACKET, OWNER

		POINTS
1*	sammyholtz16 4, sammyholtz16	1830
1*	Grant3326 7, Grant3326	1830
3	Lionel2081 2, Lionel2081	1820
4*	Uncle Chris 3, sparty8740	1810
4*	danjyoung 1, danjyoung	1810
4*	Mike Calhoon 2, Mike Calhoon	1810
4*	whitemist198805 2, whitemist198805	1810
8*	creeps, Leiviskav	1800
8*	ALD	1800

# TOP 100 SCORED 1760

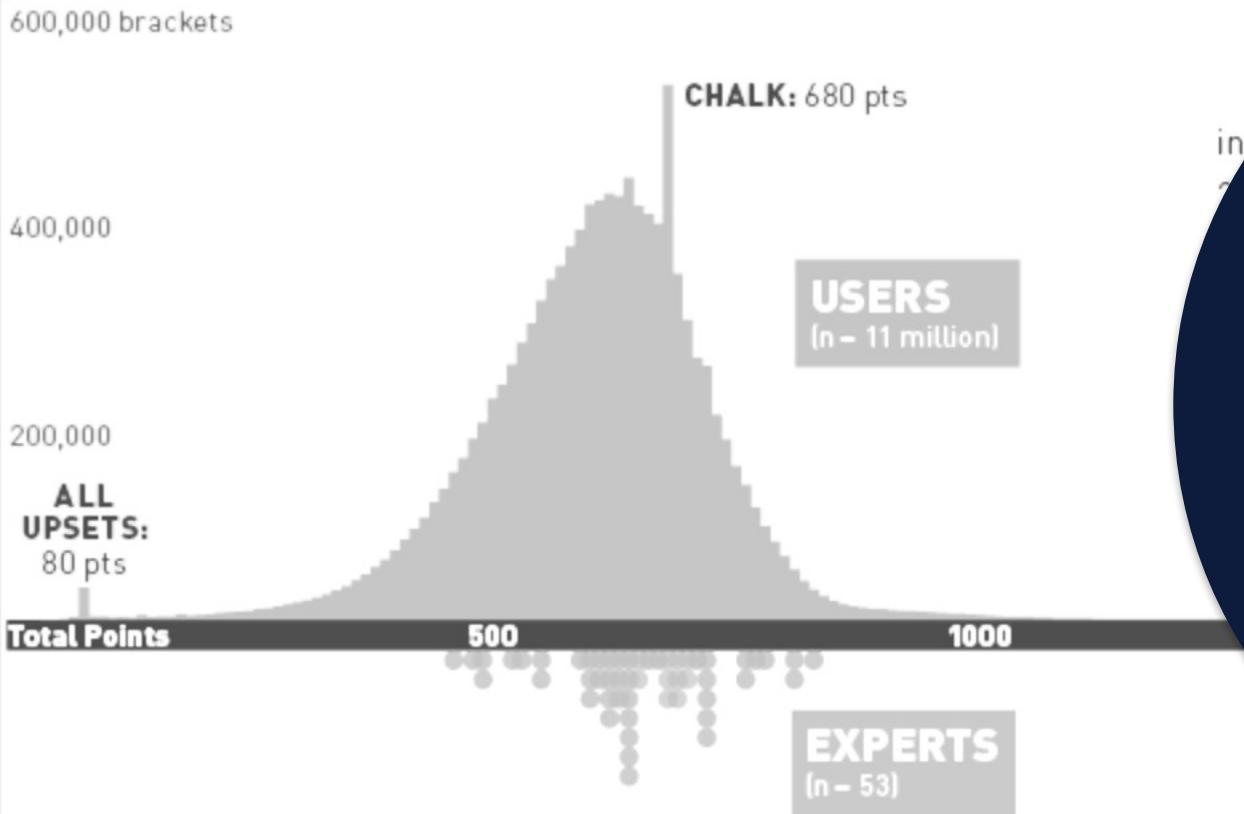


68\*

, B-Davidson2k13  
Coach Nice 2. Coach Nice

Duke	1760	100.0

\* - Denotes tiebreaks



Distribution of bracket points scored for 11,004,237 user brackets from ESPN, vs. 53 notable expert brackets.

in  
2

Pr



SCORES  
TYPICALLY  
HAVE A TIGHT  
BELL CURVE

 **Joe Lunardi**  
jlunardi919

PCT 31.6% RANK 7,914,572 POINTS 720  
+ 1+

Groups: Celebrity Central Joe Lunardi's Group ESPN's CBB Team

Looking for your Second Chance Brackets? Click the button to head back over to Tournament Challenge Second Chance.



Looking for more games? Baseball season is just around the corner!  
Sign up today for Baseball Challenge and Fantasy Baseball and play for free!

Round of 64 March 19-20 | Round of 32 March 21-22 | Sweet 16 March 26-27 | Elite 8 March 28-29 | Sweet 16 March 26-27

**Kentucky**  
1 UK 79 Final  
16 HAMP 56  
8 CIN 66 Final  
9 PUR 65  
5 WVU 68 Final

**Kentucky**  
1 UK 64 Final  
8 CIN 51  
Cincinnati

**Kentucky**  
1 UK 78 Final  
5 WVU 39  
Maryland

**Villanova**  
8 NCST 65 Final  
4 LOU 75  
N Iowa

**Villanova**  
4 LOU 70 Final  
Louisville

**Buffalo**  
5 WVU 69 Final  
WVU 62

**Kentucky**

Round Scores  
Round of 32  
Sweet Sixteen  
Elite Eight  
200 of 320  
80 of 320

# JOE LUNARDI

720



NOT LOOKING FOR A  
PERFECT BRACKET

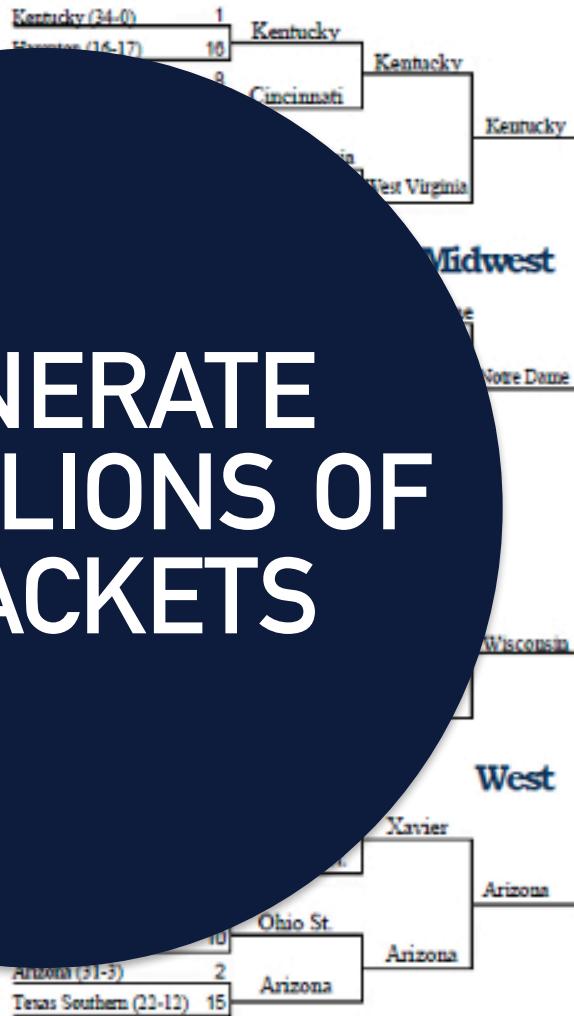
JUST  
BETTER  
THAN THE  
REST OF THE  
OFFICE



HOW ARE WE  
GOING TO DO  
THAT?



# GENERATE MILLIONS OF BRACKETS



## 2015 March Madness Bracket



# FILTER “BAD” BRACKETS





# SCORE THE REMAINING



# HOW DO WE DO THIS?

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**PROJECTS**

## Spring Batch



A lightweight, comprehensive batch framework designed to enable the development of robust batch applications vital for the daily operations of enterprise systems.

[QUICK START](#)

Spring Batch provides reusable functions that are essential in processing large volumes of records, including logging/tracing, transaction management, job processing statistics, job restart, skip, and resource management. It also provides more advanced technical services and features that will enable extremely high-volume and high performance batch jobs through optimization and partitioning techniques. Simple as well as complex, high-volume batch jobs can leverage the Spring Batch architecture to significantly reduce complexity.

### Spring Batch

[RELEASE](#)[DOCUMENTATION](#)



BATCH  
ISN'T  
IDEAL



TASKS RUN  
AT  
DIFFERENT  
TIMES



DIFFERENT STEPS  
SHOULD BE  
DECOPLED



ORCHESTRATION  
OCCURS AT  
A DIFFERENT  
LEVEL



# DISTRIBUTED DEPLOYMENT OPTIONS



DEVELOP EACH  
COMPONENT AS A  
MICROSERVICE



# THE TWELVE-FACTOR APP

## INTRODUCTION

Software is commonly delivered as a service: called *web apps*, or *software-as-a-service*. The twelve-factor approach to building software-as-a-service apps that:

- have **one codebase** for the app, which is **versioned** and **managed** by a build system;
- use **configuration** rather than code to manage the runtime environment;
- use **packaging** to bundle the application code and dependencies together, and **ship it as a binary**;
- use **configuration management** to setup automation, to minimize time and cost for new developers joining the project;
- use **containers** to package up the underlying operating system, offering **maximum portability** between execution environments;

• run on **modern cloud platforms**, obviating the need for servers and systems administration; and

- keep development and production environments **separate**, enabling **continuous deployment** for maximum reliability.

The twelve factors are orthogonal to changes to tooling, architecture, or development practices.

The twelve factors are applicable to apps written in any programming language, and which use any runtime (e.g., Java, .NET, Go, Node.js, Python, Ruby, memory cache, etc).

# OBEY THE 12 FACTOR APP PRINCIPALS

I have been directly involved in the development and deployment of hundreds of apps,



JUST  
SHORT  
LIVED

## PROJECTS : SPRING CLOUD

## Spring Cloud Task



Spring Cloud Task allows a user to develop and run short lived microservices using Spring Cloud and run them locally, in the cloud, even on Spring Cloud Data Flow. Just add `@EnableTask` and run your app as a Spring Boot app (single application context).

[QUICK START](#)

### Quick Start

[Download](#)

1.0.0 M1

CURRENT

PRE



MAVEN

GRADLE

### Spring Cloud Task

[RELEASE](#)[DOCUMENTATION](#)



A framework for providing functional  
and nonfunctional features  
for building short lived microservices.

## Spring Cloud Task

RELEASE

DOCUMENTATION

1.0.0 M1 CURRENT

[Reference](#) | [API](#)

PRE

1.0.0 CURRENT

[Reference](#) | [API](#)

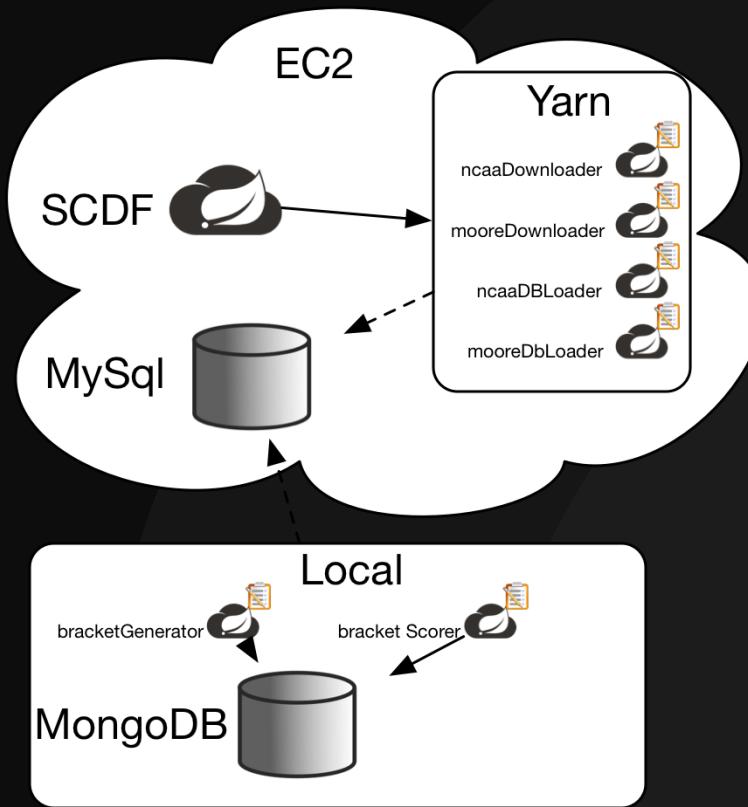
SNAPSHOT

# CURRENT VERSION

## 1.0.0.M1

# HELLO WORLD!

```
1 package org.dn;
2 import ...
3
4 @SpringBootApplication
5 @EnableTask
6 public class DnDemoApplication {
7
8     @Bean
9     public MyHelloRunner myHelloRunner(){
10         return new MyHelloRunner();
11     }
12
13     public static void main(String[] args) {
14         SpringApplication.run(DnDemoApplication.class, args);
15     }
16
17     public class MyHelloRunner implements CommandLineRunner {
18
19         @Override
20         public void run(String... strings) throws Exception {
21             System.out.println("hello world");
22             throw new IllegalStateException("No hello world for you!");
23         }
24     }
25
26 }
27
28 }
29
30 }
```





**DEMO**

# ROADMAP



PROJECTS : SPRING CLOUD

## Spring Cloud Stream



Spring Cloud Stream allows a user to develop and run messaging microservices using Spring Integration and run them locally, or in the cloud, or even on Spring XD. Just add `@EnableBinding` and run your app as a Spring Boot app (single application context). You just need to connect to the physical broker for the bus, which is automatic if the relevant bus implementation is available on the classpath.

[QUICK START](#)[Quick Start](#)[Spring Cloud Stream](#)

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**PROJECTS**

## Spring Batch



A lightweight, comprehensive batch framework designed to enable the development of robust batch applications vital for the daily operations of enterprise systems.

[QUICK START](#)

Spring Batch provides reusable functions that are essential in processing large volumes of records, including logging/tracing, transaction management, job processing statistics, job restart, skip, and resource management. It also provides more advanced technical services and features that will enable extremely high-volume and high performance batch jobs through optimization and partitioning techniques. Simple as well as complex, high-volume batch jobs can leverage the Spring Batch architecture to significantly reduce complexity.

### Spring Batch

[RELEASE](#)[DOCUMENTATION](#)

## PROJECTS : SPRING CLOUD

## Spring Cloud Data Flow



A cloud native programming and operating model for composable data microservices on a structured platform. With Spring Cloud Data Flow, developers can create, orchestrate and refactor data pipelines through single programming model for common use cases such as data ingest, real-time analytics, and data import/export.

[QUICK START](#)

Spring Cloud Data Flow is the cloud native redesign of [Spring XD](#) – a project that aimed to simplify development of Big Data applications. The integration and batch modules from Spring XD are refactored into Spring Boot *data-microservice* applications that are now autonomous deployment units – thus enabling them to take full advantage of platform capabilities "natively", and they can independently evolve in isolation.

[spring-cloud-dataflow](#)[RELEASE](#)[DOCUMENTATION](#)

## Spring Cloud Task

RELEASE

DOCUMENTATION

1.0.0 M1 CURRENT

[Reference](#) | [API](#)

PRE

1.0.0 CURRENT

[Reference](#) | [API](#)

SNAPSHOT

1.0.0.M2  
EARLY NEXT MONTH

## Spring Cloud Task

RELEASE

DOCUMENTATION

1.0.0 M1 CURRENT

[Reference](#) | [API](#)

PRE

1.0.0 CURRENT

[Reference](#) | [API](#)

SNAPSHOT

# 1.0.0 RELEASE (GA) SECOND QUARTER



QUESTIONS?

# THANKS!

