Simulated random guesses of a shape sequence

```r
library(ggplot2)
library(cbinom)
iter <- 10000
n <- 10
m <- 7
```

```r
key <- seq_len(m)
choices <- seq_len(n)
scores <- numeric(iter)

for(i in seq_len(iter)) {
  scores[i] <- sum(sample(choices, size=m) == key)
}
```

```r
ggplot() + aes(scores) +
  geom_histogram(aes(y=..density..), binwidth=1, position=position_nudge(x = 0.5), fill="indianred1") +
  geom_vline(xintercept=mean(scores), size=0.75, col="indianred4", linetype="dashed") +
  stat_function(fun=dcbinom, args=list(seq(0, m), size=m, prob=1/n), size=0.75, col="indianred4") +
  scale_x_continuous(name="Score", breaks=sort(c(seq(0, m), round(mean(scores), digits=1)))) +
  scale_y_continuous(name="Density") +
  ggtitle("Score distribution of random guesses")
```


Score distribution of random guesses