

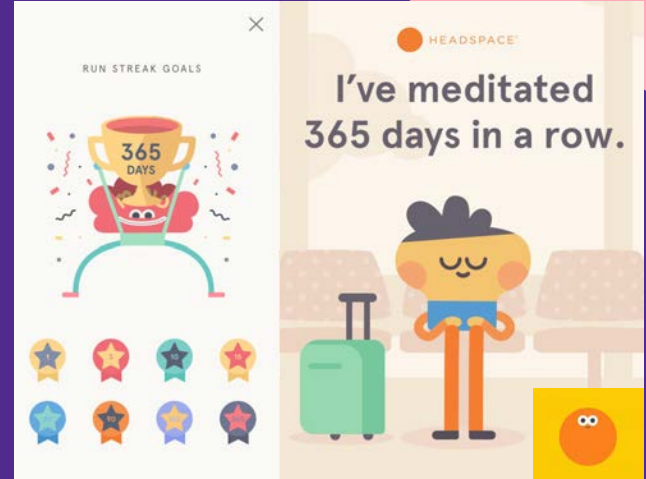
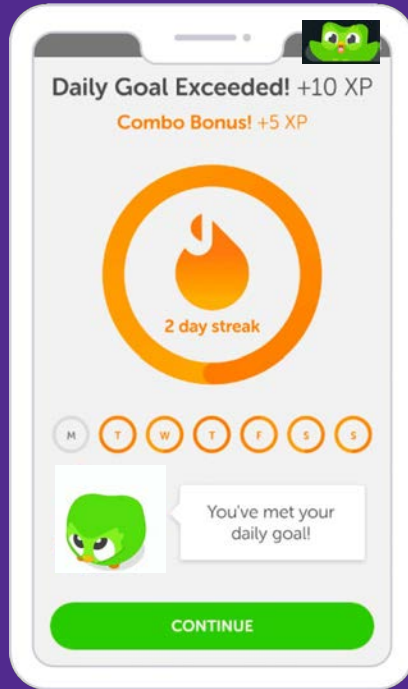
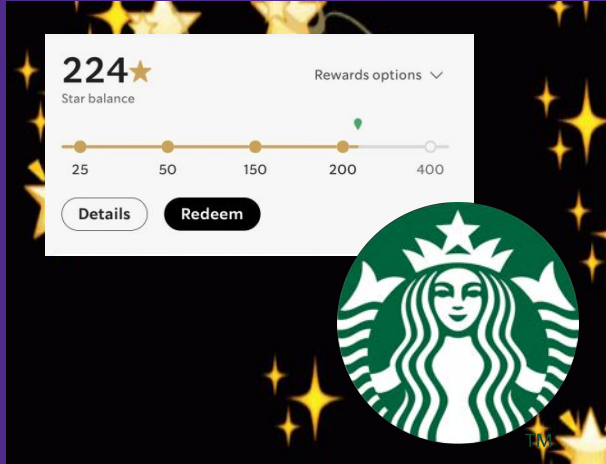
React

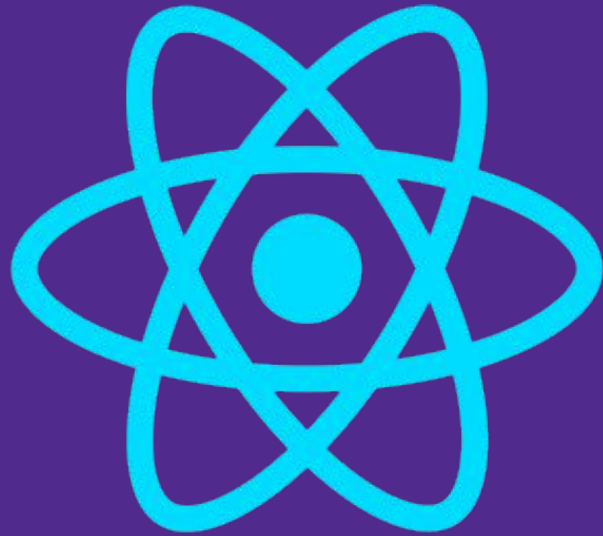
and the Art of Gamification

Courtney Yatteau

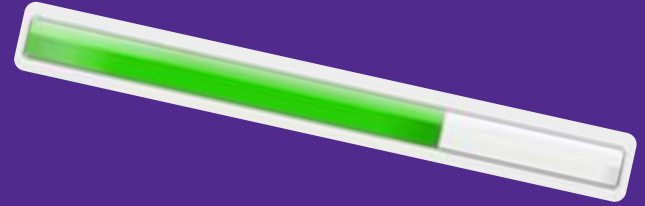


Why Gamification?





React JS



Courtney Yatteau
Developer Advocate, Esri



What We'll Cover



Gamification Techniques

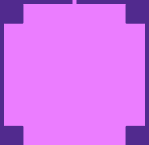
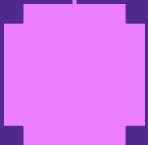
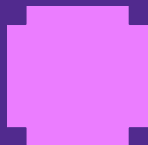
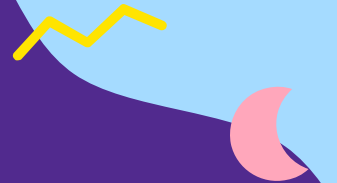


Real-World Examples



Coding Demo

github.com/cyatteau/gamified-demo-conf42js-2024



Gamified
Components



Gamified Components

XP, badges, progress bars, targets

The screenshot shows the Codecademy user dashboard. At the top, there's a navigation bar with 'codecademy' logo, 'My Home', 'Catalog', 'Resources', 'Community', and 'For Teams'. A search bar and notification bell are on the right. A left sidebar contains 'Dashboard', 'My learning', 'Events', 'Projects', and 'Workspaces'. The main content area is titled 'Follow your progress' and features a 'Your skills' section with a '+56 XP newly added' badge and a 'Most progress' dropdown. Below this is a table of skills with progress bars and XP values:

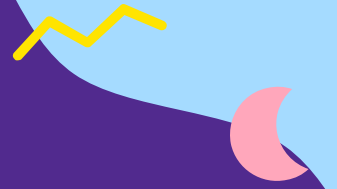
Skill name	Progress	XP
Python	80%	100 XP
Computer science	75%	75 XP
HTML & CSS	50%	50 XP
Bash/shell	25%	25 XP
C	25%	25 XP
Skill name	25%	25 XP

Additional features include a 'Weekly target' section showing '2 of 3 days' completed with a calendar icon, and a 'Your goal' section with 'Change my career' and an 'Edit' link. A 'View achievements >' link is at the bottom right of the dashboard.

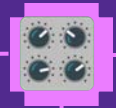
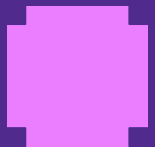
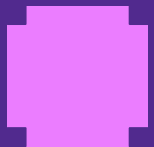
The 'My Achievements' section displays a grid of achievement cards. The first card is a placeholder for an achievement that is not yet unlocked. The other three cards are:

- Persevering**: Target was met 9 months in a row. Date: Jul 20, 2022.
- Persistent**: Target was met 6 months in a row. Date: Apr 20, 2022.
- Determined**: Target was met 3 months in a row. Date: Jan 20, 2022.

A 'View My Profile' link is located at the top right of the achievements section.



Advanced State Control



Gamified Components

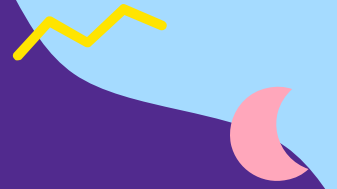


Advanced State Control

Context API: UI Theming

- Consistent, dynamic, efficient

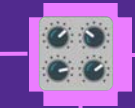
```
Context.Provider
  type: {$$typeof: Symbol(react.memo), Compa...
  value: {buttons: {...}, cards: {...}, contentSecti...
    buttons: {base: {...}, variants: {...}}
      base: {default: {...}, modes: {...}, spinner: ...
        default: {backgroundColor: "#F9F4F2", bo...
        modes: {active: {...}, disabled: {...}, hove...
        spinner: {progressColor: "#44423F", size...
      variants: {bordered-destructive: {...}, bord...
        bordered-destructive: {default: {...}, mod...
        bordered-primary: {default: {...}, modes: ...
        bordered-secondary: {default: {...}, modes...
        destructive: {default: {...}, modes: {...}, ...
        icon: {default: {...}, modes: {...}, spinner...
        orange: {default: {...}, modes: {...}, spinn...
        primary: {default: {...}, modes: {...}, spin...
        secondary: {default: {...}, modes: {...}, sp...
        selection: {default: {...}, modes: {...}, sp...
        tab: {default: {...}, modes: {...}, spinner:...
      cards: {base: {...}}
```



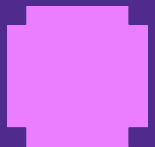
Gamified
Components



Advanced
State Control



Memoization
... evolves to
Modern
Optimization



React Compiler

This page will give you an Introduction to React Compiler and how to try it out successfully.

Under Construction

These docs are still a work in progress. More documentation is available in the [React Compiler Working Group repo](#), and will be upstreamed into these docs when they are more stable.

You will learn

- Getting started with the compiler
- Installing the compiler and eslint plugin
- Troubleshooting

Note

React Compiler is a new compiler currently in Beta, that we've open sourced to get early feedback from the community. While it has been used in production at companies like Meta, rolling out the compiler to production for your app will depend on the health of your codebase and how well you've followed the [Rules of React](#).

The latest Beta release can be found with the `@beta` tag, and daily experimental releases with

Example

```
PlayerList Memo ⚡ ⚠  
Player key="2" Memo ⚡  
Player key="7" Memo ⚡  
Player key="1" Memo ⚡  
Player key="3" Memo ⚡  
Player key="4" Memo ⚡  
Player key="5" Memo ⚡  
Player key="6" Memo ⚡  
Player key="8" Memo ⚡  
Player key="9" Memo ⚡  
Player key="10" Memo ⚡
```

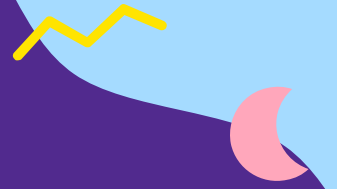
The screenshot shows a code editor window with a dark theme. At the top, there's a toolbar with icons for undo, redo, close, and settings. Below the toolbar, the code is displayed in a monospace font. The code defines a list of players, each with a key and a memoized value. The keys are "2", "7", "1", "3", "4", "5", "6", "8", "9", and "10". Each key is followed by the word "Memo" and a lightning bolt icon, indicating that the value is memoized. The code is wrapped in a component named "PlayerList" with a "Memo" prop and a warning icon.

Memoization

Efficient, selective re-rendering

The screenshot displays a web browser window with a URL `https://app.grammarly.com/ddocs/1971417314`. On the left, a component inspector shows a tree view with a component named `memo` highlighted. Below it, the props and hooks for the `memo` component are visible. The props include `Ref`, `experience`, `lifecycle`, `assistant`, `textEditor`, `promptActions`, `promptMenu`, `notifications`, `voiceProfile`, `feedbackForm`, `userSurvey`, `skill`, and `theme`. The hooks section shows a `useMemo` hook with a dependency array containing `assistant`.

The main content area shows a text input field with the text `Hj I have many jokes. But unlike pi, I don't have forever.`. A review suggestion panel is open on the right, showing a suggestion to `Add the punctuation` with the text `Hi`. The panel includes tabs for `Correctness`, `Clarity`, `Engagement`, and `Delivery`. At the bottom of the panel, there is a link to `Check for plagiarism and AI text`.



Gamified
Components



Advanced
State Control



Memoization
... evolves to
Modern
Optimization



Efficient
Rendering



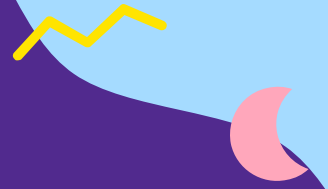
Efficient Rendering

Smooth animations via Suspense

The image shows a browser window displaying a Duolingo lesson page. The page title is "SECTION 1, UNIT 1 Use basic phrases". The browser's address bar shows the URL "https://www.duolingo.com/learn". The page content includes a green header, a "START" button, a star icon, a printer icon, and a Duolingo character. A React DevTools component inspector is overlaid on the page, showing the component tree and props for the "Suspense" component. The component tree shows a hierarchy of components, with "Suspense" highlighted. The props for "Suspense" are listed below, including "children", "className", "isPlaying", "loop", "onDOMLoaded", "path", "type", and "fallback".

```
u ForwardRef
  Anonymous ForwardRef
  Anonymous ForwardRef
  Ga
  Anonymous key="0" ForwardRef
  na key="0"
  Suspense
  Anonymous ForwardRef
  Anonymous ForwardRef
  Anonymous key="a4cab134dd9541a..." ForwardRef
  Anonymous ForwardRef
  Anonymous ForwardRef
  Anonymous ForwardRef

Suspense
  props
    children: {Symbol(react.element), ...}
    $$typeof: Symbol(react.element)
    _owner: null
    key: null
    props: {className: "_1bppN", isPlaying: true, ...}
    onDOMLoaded: f onDOMLoaded() {}
    path: "https://d35aaox5ub951t.cloudfront.n...ref: null
    type: {Symbol(react.forward_ref), ...}
    $$typeof: Symbol(react.forward_ref)
    getError: f () {}
    hasLoaded: f () {}
    isLoading: f () {}
    preload: f () {}
    render: f () {}
    fallback: null
```



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Advanced
State Control

Efficient
Rendering



Gamified
Components

Memoization

Social
Interactions

A

... evolves to
Modern
Optimization

E



Social Interactions

The screenshot shows the Duolingo interface for the Bronze League. On the left is a navigation menu with options: LEARN, CHARACTERS, PRACTICE, LEADERBOARDS (highlighted), QUESTS, SHOP, PROFILE, and MORE. The main content area displays the 'Bronze League' title, a progress indicator for the top 20, and a list of users with their XP. On the right, there are sections for 'FOLLOWING' and 'FOLLOWERS', a motivational quote, and 'Add friends' options like 'Find friends' and 'Invite friends'.

duolingo

LEARN
CHARACTERS
PRACTICE
LEADERBOARDS
QUESTS
SHOP
PROFILE
MORE

Bronze League
Top 20 advance to the next league
3 days

1	Ignotus	1730 XP
2	sheikh saim	1305 XP
3	Jovan	697 XP
4	Riley	674 XP
5	hughes	557 XP
6	Игорь Романов	491 XP
7	Fatoş Kizmaz	209 XP
8	Anastasia	207 XP

FOLLOWING FOLLOWERS

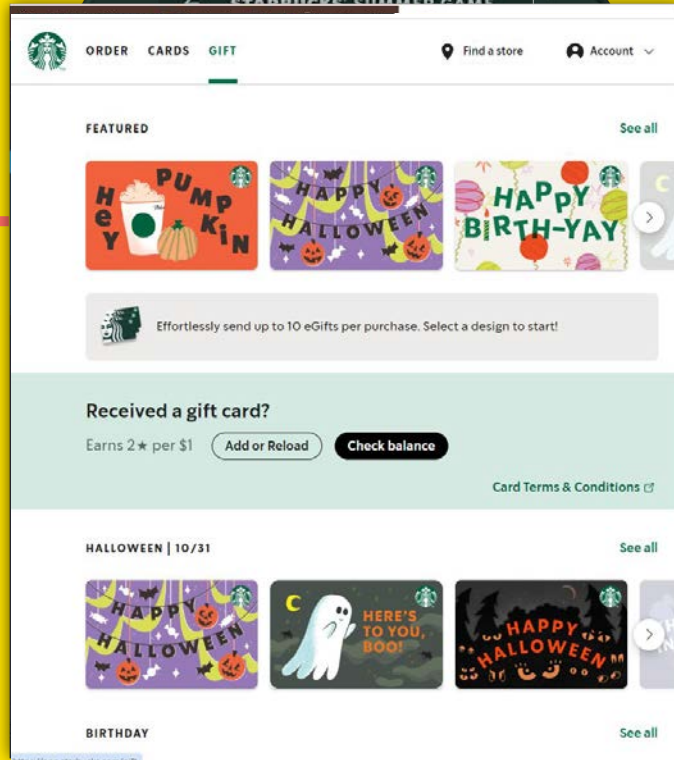
Learning is more fun and effective when you connect with others.

Add friends

- Find friends >
- Invite friends >

GAMES

Personalized
Memorization
Starbucks
Learning!





Coding Demo

Let's build a gamified app together!

Starter code: github.com/cyatteau/gamified-demo-conf42js-2024

RESOURCES

- React Documentation
- Esri Leaflet Documentation
- React Compiler Documentation
- Map Code Demo
 - Starter Code
 - Final Code

Thank you, Conf42 JavaScript 2024!

Courtney Yatteau

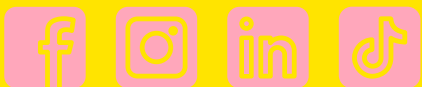
  @c_yatteau

 courtneyyatteau



bit.ly/conf42js2024-react-gamification

THANKS!



Do you have any questions?

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