

SVEUČILIŠTE U SPLITU,
FAKULTET ELEKTROTEHNIKE, STROJARSTVA I BRODOGRADNJE



(Web aplikacija za kupnju i pretraživanje video igara)

Kolegij:
Korisnička sučelja

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Split, veljača 2021.

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1. Uvod

G4U je web aplikacija za kupnju i pretraživanje video igara te pregledavanje novosti. Cilj ovog projekta je izrada jednostavne web aplikacije koja bi omogućila prosječnim korisnicima kupnju i pretraživanje različitih video igara neovisno o njihovim platformama, kao i lagano pregledavanje novosti vezanih za video igre i tehnologije njihove izrade.

1.1. Stanje na tržištu

Stranice ovakve namjene na Internetu već postoje, ali kod nekih se javlja problem dizajna koji korisniku ne omogućava jednostavno snalaženje u velikim količinama podataka i ugodnost korištenja, kao i problem nedovoljne preglednosti i nedostatka responzivnosti što otežava korištenje aplikacije na mobilnim uređajima.

1.2. Korisnici

Web aplikacija namijenjena je širokom krugu korisnika koji razumiju engleski jezik. Prepostavka je da će većina korisnika biti starosti između 15 i 60 godina te će imati barem osnovno informatičko znanje i iskustvo s radom na računalu. Međutim, ni ostali korisnici ne bi trebali imati problema u snalaženju na web stranici zbog jednostavnosti i *user-friendly* sučelja.

1.3. Ograničenja korištenja sustava

Da bi mogao koristiti web aplikaciju, korisnik bi trebao:

- razumjeti engleski jezik
- imati pristup Internetu
- imati uređaj s web preglednikom

1.4. Zahtjevi i zadaće sustava

Zahtjevi i zadaće koje web aplikacija mora imati:

- web aplikacija koristit će se iz web preglednika
- web aplikacija koristit će se na uređajima različite veličine (*smartphones*, tableti, laptopi i desktop računala)
- korisnik će moći filtrirati proekte
- broj produkata koji se nudi putem web-a veći je od 20
- korisnik će moći koristiti web aplikaciju kao gost ili će se prijaviti u vlastiti profil
- broj stranica koje ne zahtijevaju prijavu u sustav je 7
- jedna od javnih stranica je blog (blog mora sadržavati minimalno 20 postova koje mogu uključivati slike, videa, *code snippet*-e)

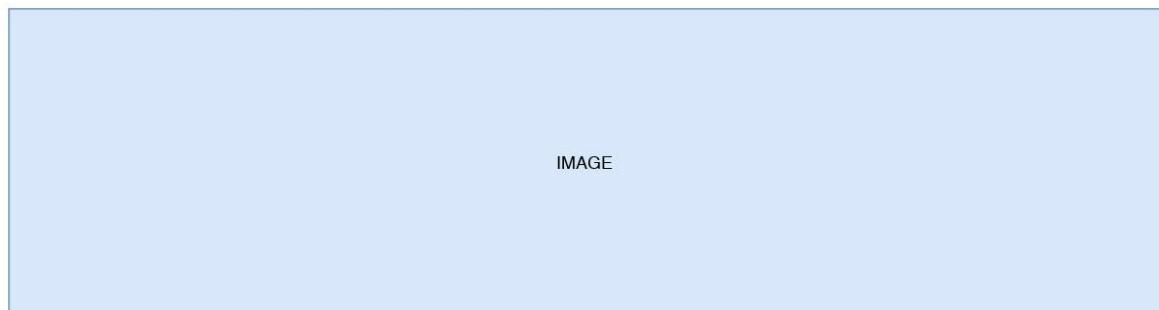
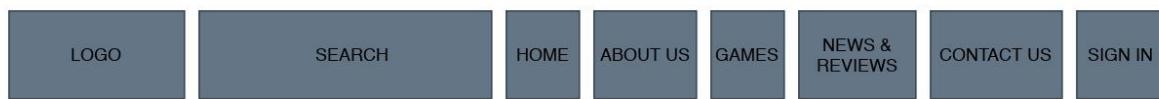
2. Low-fidelity prototip

Prvi korak u izradi projekta je izrada *low-fidelity* prototipa. Cilj *low-fidelity* prototipa nije prikazati izgled finalnog proizvoda, već je to jednostavni način prikazivanja koncepta dizajna u svrhu početnog testiranja. Prototip je napravljen koristeći usluge <https://www.draw.io/>.

2.1. Low-fidelity prototip za desktop verziju



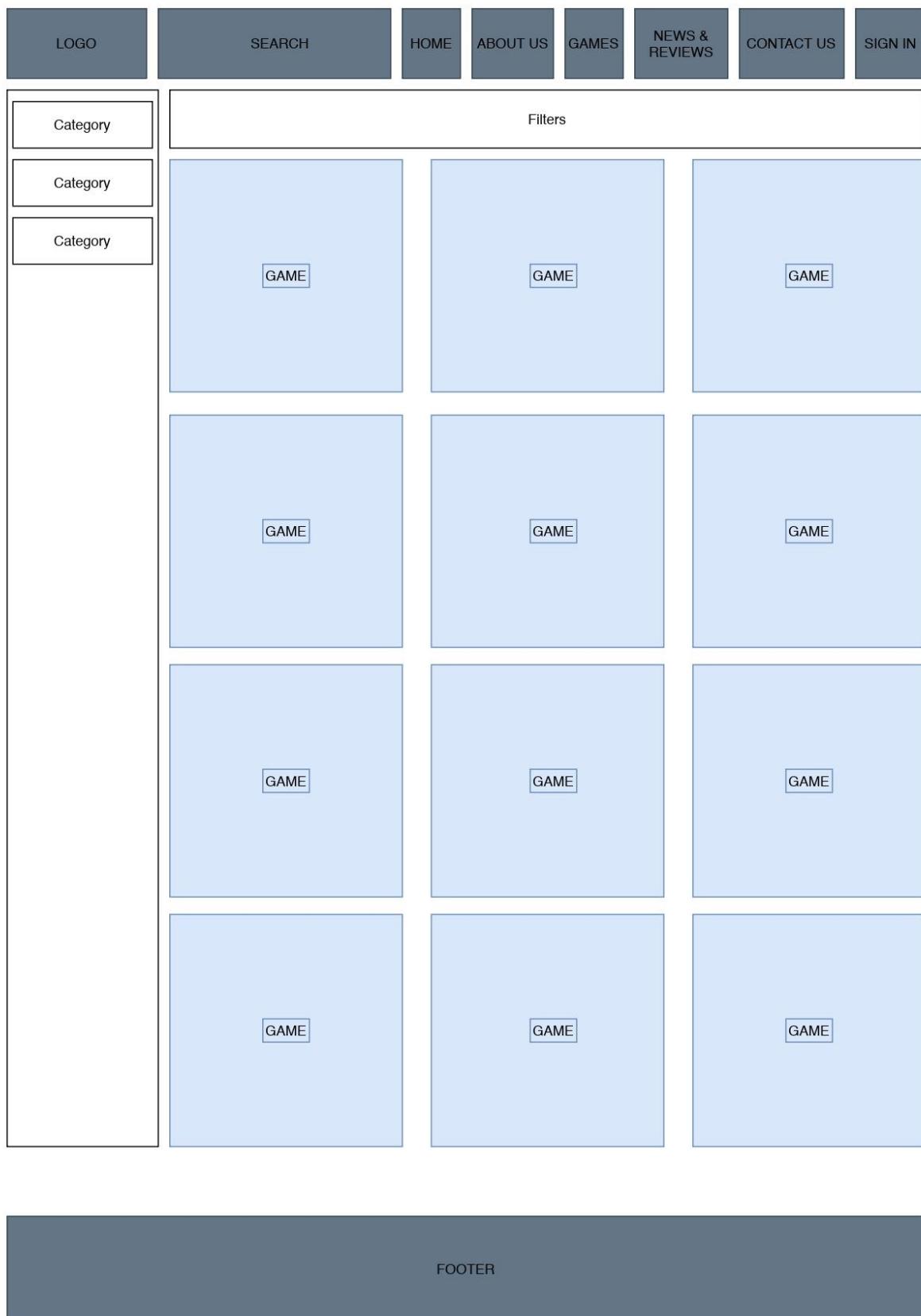
Slika 2.1. - Low-fidelity prototip - About stranica



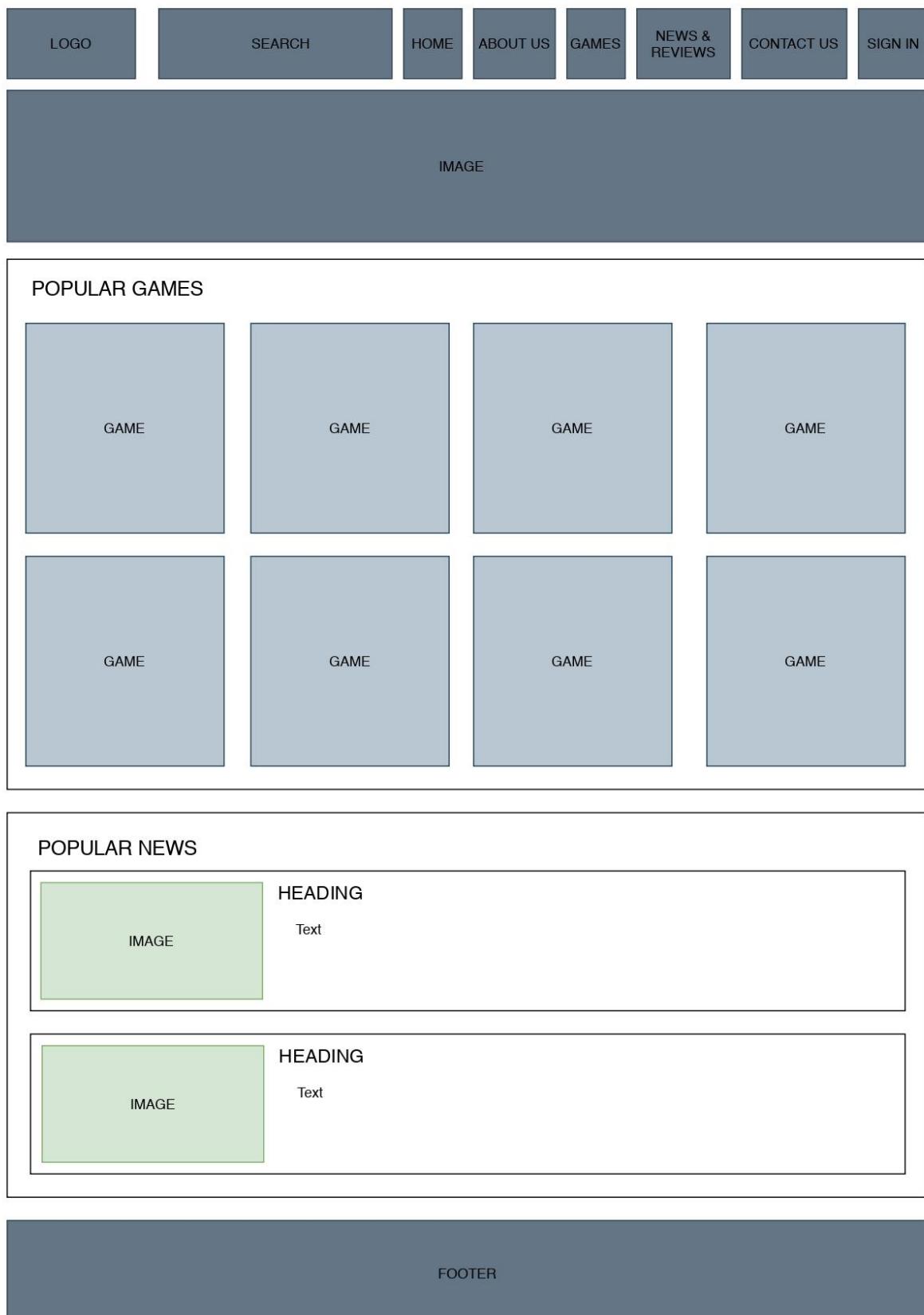
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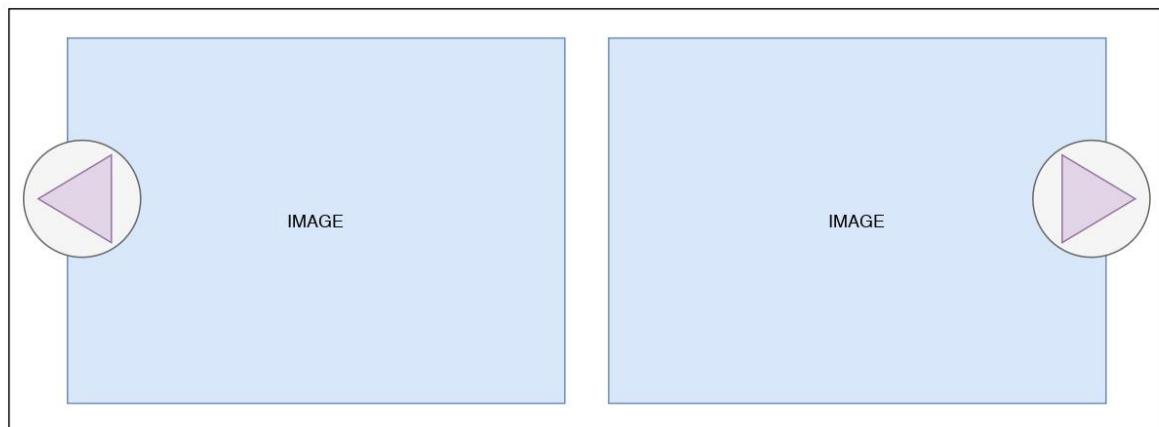
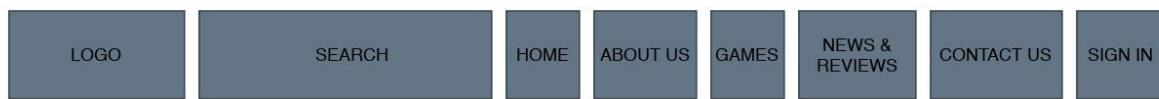
Slika 2.3. - Low-fidelity prototip – Game Details stranica



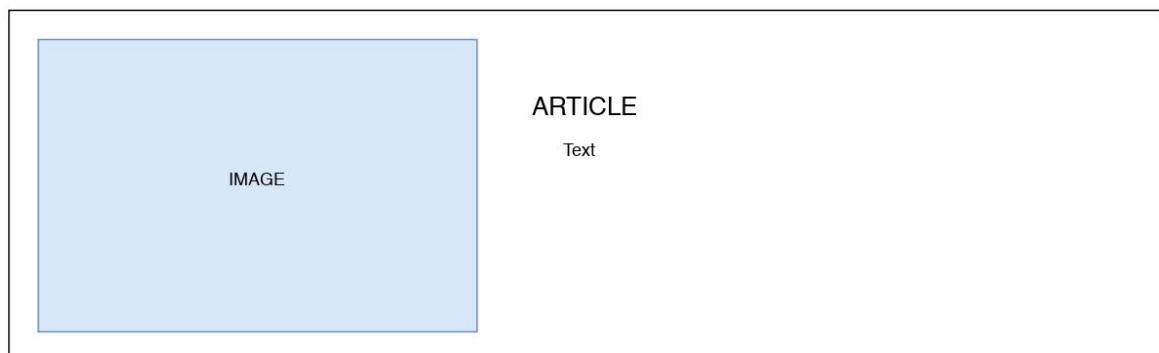
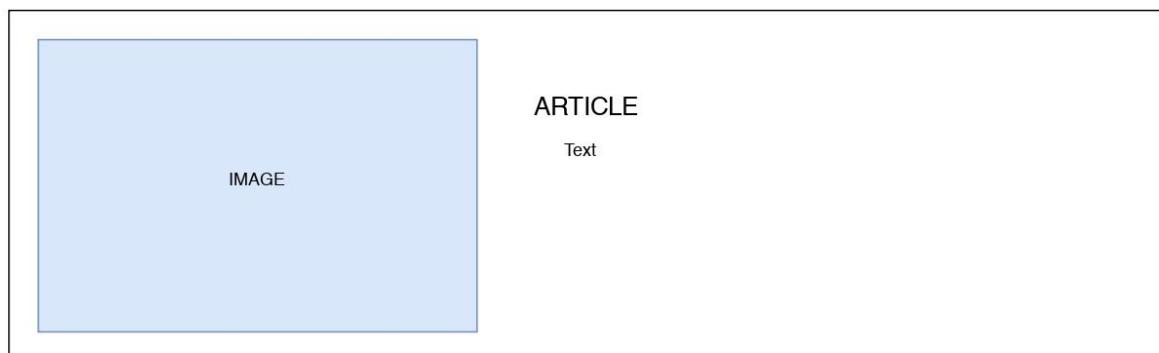
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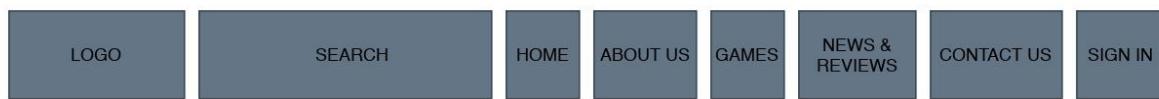
Slika 2.5. - Low-fidelity prototip – Home stranica



NEWS



Slika 2.6. - Low-fidelity prototip – News stranica



SIGN IN

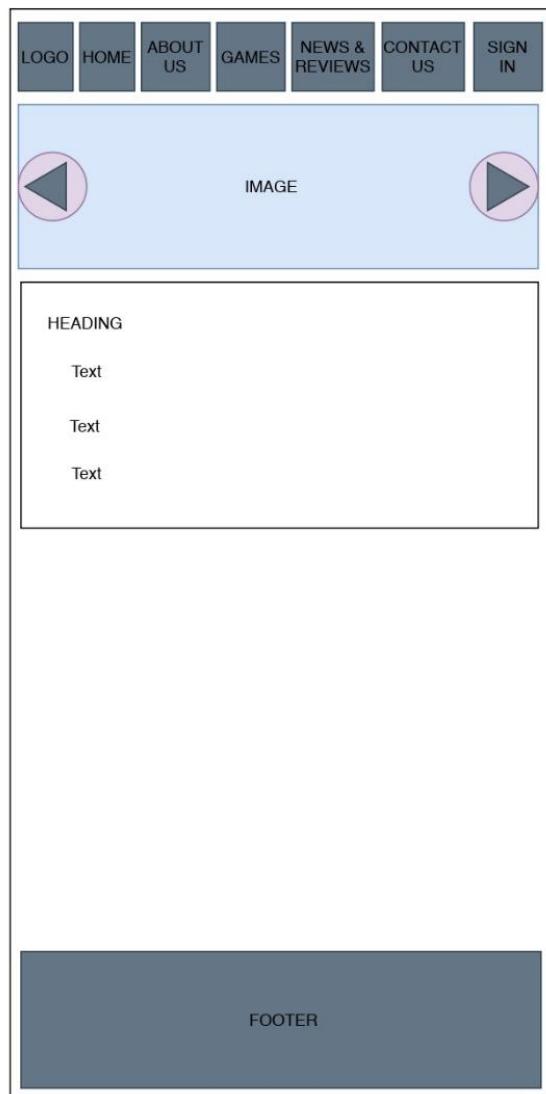
A large rectangular container representing a form. Inside, there are four input fields: 'First name' and 'Last name' in a grid at the top, followed by 'E-mail' and 'Password' below them. At the bottom center is a button labeled 'Create Account'.

First name	Last name
E-mail	
Password	
Create Account	

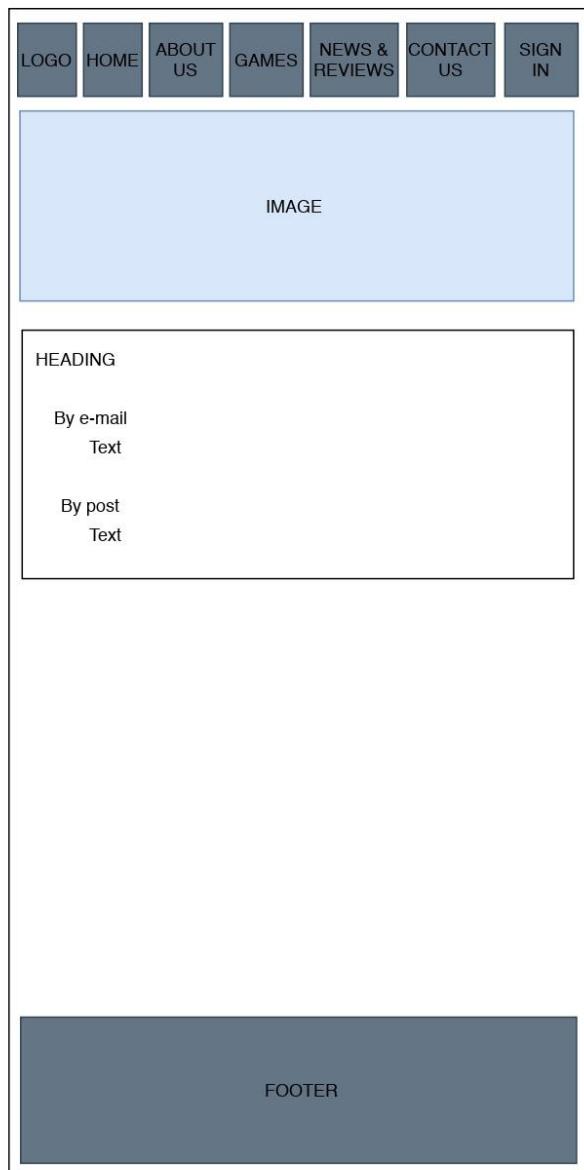


Slika 2.7. - Low-fidelity prototip – Log in stranica

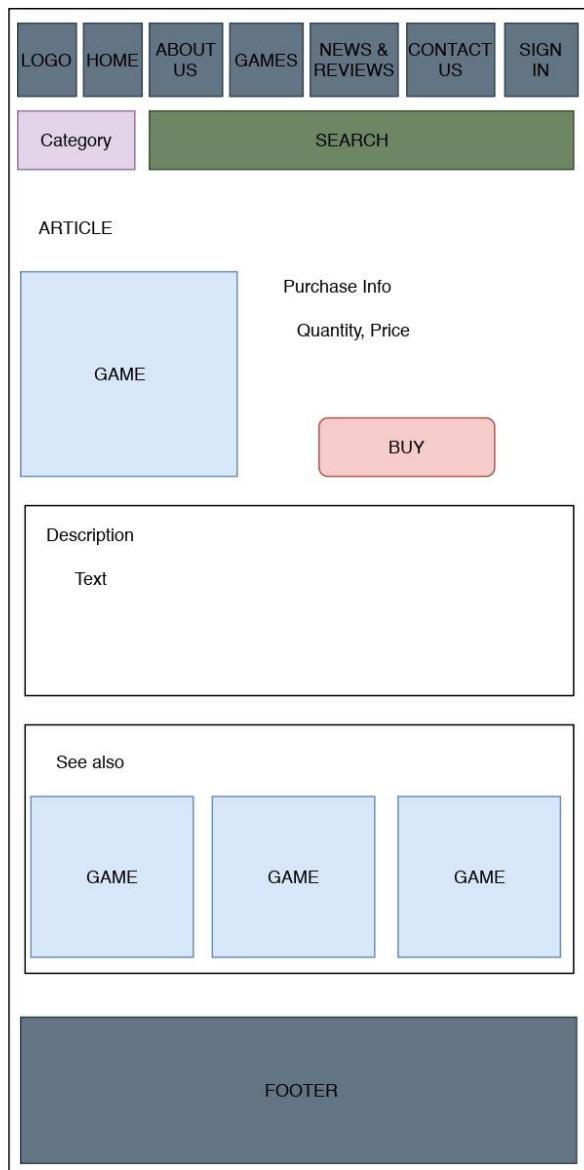
2.2. Low-fidelity prototip za mobilnu verziju



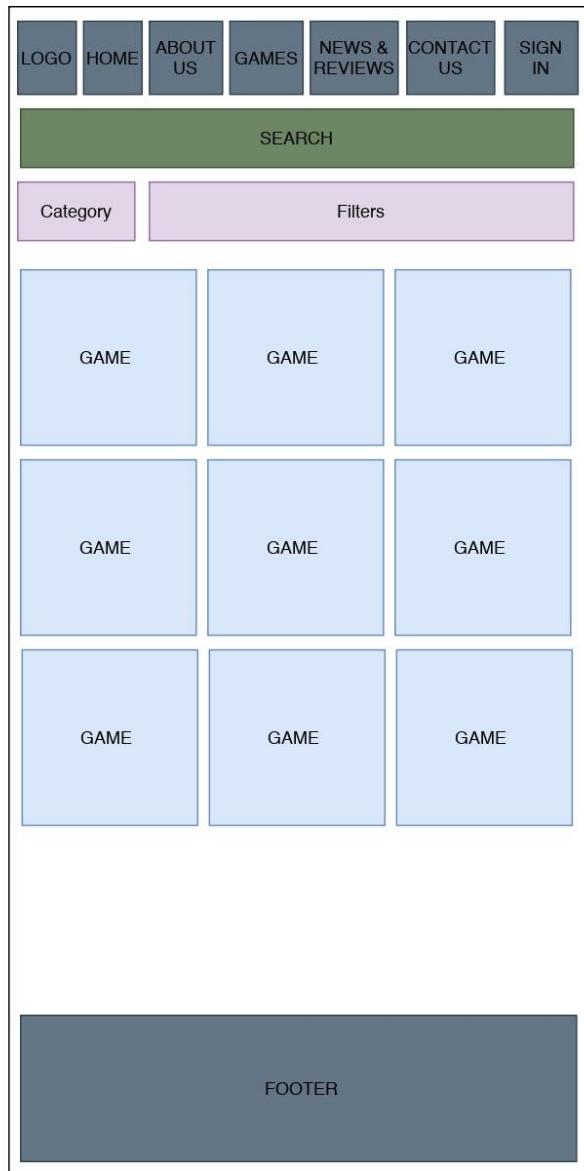
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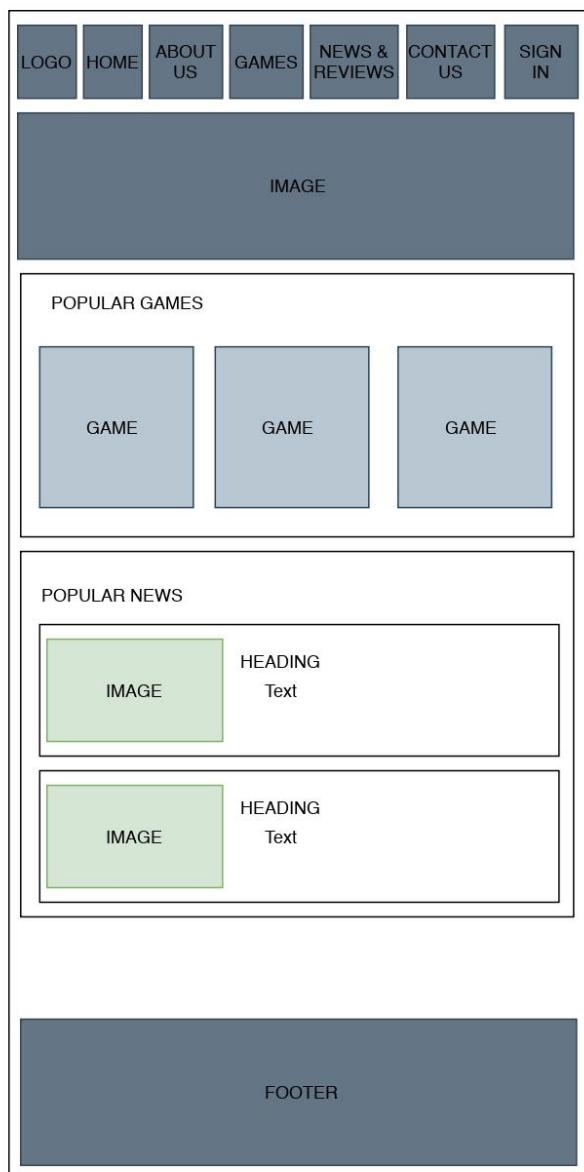
Slika 2.9. - Low-fidelity prototip – Contact stranica



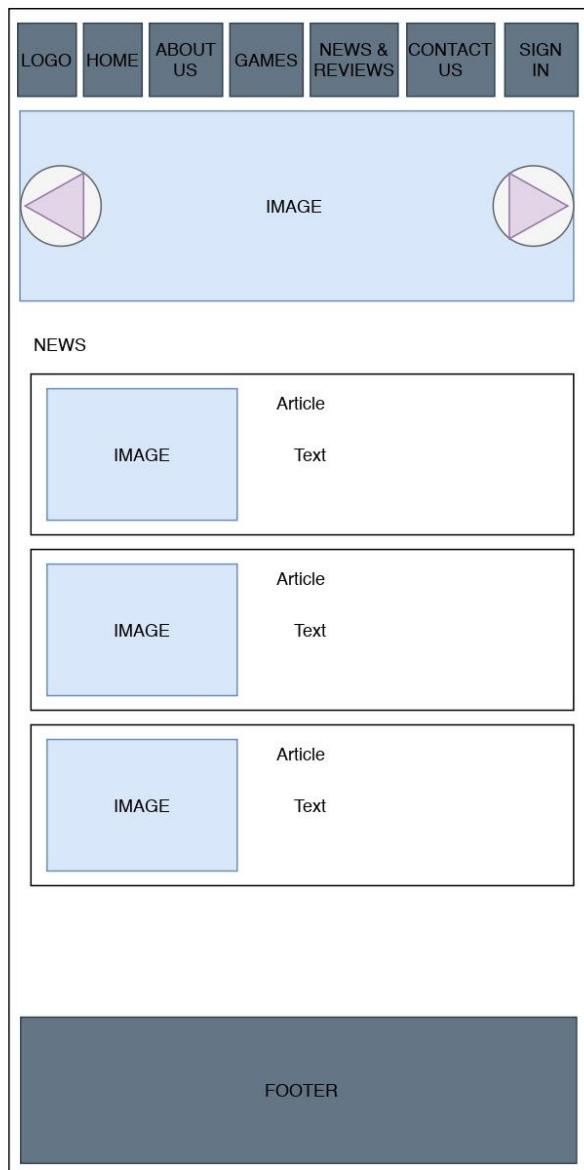
Slika 2.10. - Low-fidelity prototip – Game Details stranica



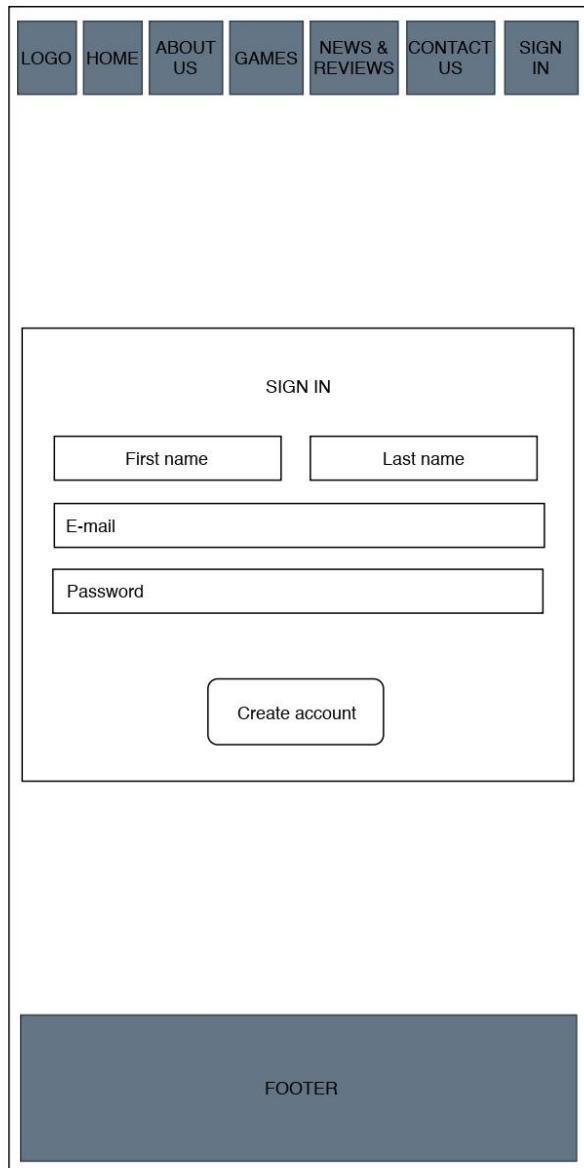
Slika 2.11. - Low-fidelity prototip – Game Category stranica



Slika 2.12. - Low-fidelity prototip – Home stranica



Slika 2.13. - Low-fidelity prototip – News stranica



Slika 2.14. - Low-fidelity prototip – Log in stranica

3. High-fidelity prototip

Drugi korak u izradi projekta je izrada *high-fidelity* prototipa. *High-fidelity* prototip je često interaktivan i funkcionalan te može korisnicima prikazat stvaran izgled finalnog proizvoda. Ovo je faza u kojoj je najbolje vršiti evaluaciju zato što korisnik vidi stvarni izgled proizvoda, a promjene je još uvijek jednostavno uvesti. U nastavku su prikazani *high-fidelity* prototipi za desktop i mobilne verzije. Prototipi su napravljeni koristeći usluge <https://www.figma.com/>.

3.1. High-fidelity prototip za desktop verzije

The screenshot shows the G4U website's 'About Us' page. At the top, there is a navigation bar with links for Home, About (which is highlighted in orange), Games, News & Reviews, Contact, a shopping cart icon, and Sign In. Below the navigation is a large image of a red computer keyboard key with the text 'About Us' written on it in white. The main content area is divided into four sections: 'What is G4U ?', 'What can you do on G4U ?', 'Who we are ?', and 'Where we are going ?'. Each section contains descriptive text and an associated image.

- What is G4U ?**

A gaming and esports hub that empowers over 5 million gamers.
We've built a safe and convenient space to connect, share knowledge, and exchange digital goods.


- What can you do on G4U ?**

Buy video game digital items such as in-game items, gift cards, games and more.
All transactions are safe and secure, backed by our G4U Guarantee.


- Who we are ?**

We're a group of passionate gamers who started off with the goal of empowering gamers by offering a safe and reliable place to monetize your hard earned digital goods.


- Where we are going ?**

We aim to continue to empower our community by staying on top of trends and by constantly improving our platform to the user needs.
We've also set our sights on eSports and we're ready to help you level up in your favorite games.



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Slika 3.1. - *High-fidelity - About stranica*



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Research & Development:

Metković, Croatia

Drniš, Croatia

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Assassin's Creed: Valhalla (PC)

59.99 €

[Add to cart](#)

England in the age of the Vikings is a fractured nation of petty lords and warring kingdoms. Beneath the chaos lies a rich and untamed land waiting for a new conqueror. Will it be you?

Product description

Set during the time of Viking conquest of Britain, the game features several new gameplay mechanics, as well as a few from the earlier installments of the series. The title received positive initial receptions, mainly of its intriguing setting and protagonist.





Assassin's Creed Valhalla

Assassin's Creed Valhalla is an open world action-adventure game developed by Ubisoft Montreal and published by Ubisoft in 2020. It's the twelfth main game in the AC series, and a third to feature the new gameplay mechanics of AC: Origins, a mesh of action and RPG elements. The game is set during the time of the Viking invasion of Britain. The player takes control of Eivor, a leader of a Viking clan, seeking refuge on the eastern shores of England.

The game introduces several new gameplay mechanics, as well as reinstates the ones seen in earlier Assassin's Creed games, such as lethal hidden blade assassinations, settlement management, etc. The title was announced to a mostly positive response from the critics.

Key Features

- A new tale in the Assassin's Creed canon
- As Eivor, lead your people to prosperity in the new land
- Expand your settlement and conquer new areas
- Travel along the shores of Britain aboard a Viking ship
- Discover the secrets of the Precursors

Release date: 11.10.2020.





System requirements

Processor:	AMD FX-8350 @ 4.0 GHz, Ryzen 5 - 1400, Intel Core i7-3770 @ 3.5 GHz or better
Graphics:	AMD Radeon R9 290, NVIDIA GeForce GTX 970 (4GB VRAM with Shader Model 5.0) or better
Memory:	8 GB RAM
Disk space:	46+ GB available space

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Snowrunner
(PC/PS4)
39.99 €



I Am Bread
(PC/PS4/XBox One)
12.99 €



Supraland
(PC/PS4/XBox 360)
13.99 €



Human Fall Flat
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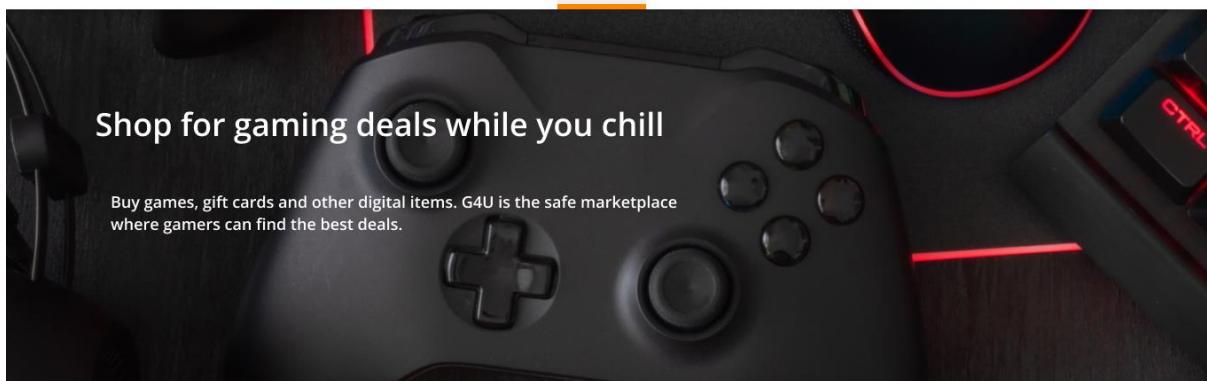
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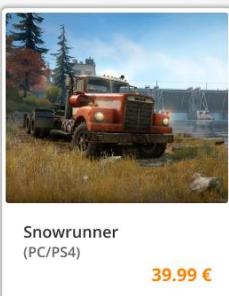
Slika 3.3. - High-fidelity – Game Details stranica



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Buy games, gift cards and other digital items. G4U is the safe marketplace where gamers can find the best deals.

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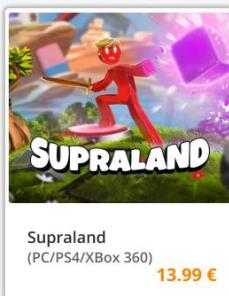
Snowrunner
(PC/PS4)

39.99 €



I Am Bread
(PC/PS4/XBox One)

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Supraland
(PC/PS4/XBox 360)

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Human Fall Flat
(PC/PS3/PS4)

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Cyberpunk 2077 has been delayed until December

By Tomislav Čajić 18.11. 2020.

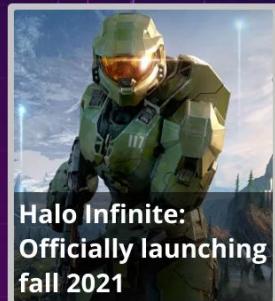
Cyberpunk 2077 has been delayed again, but is still set to launch this year. In a statement on Twitter, developer CD Projekt Red confirmed that the Cyberpunk 2077 release date has been pushed back by 21 days, and will now release on December 10.



Among Us Impostor tips: 10 ways to win as an impostor

By Antonio Musulin 17.11. 2020.

Being an Among Us Impostor is not an easy job. A great Impostor is sneaky, takes advantage of the game mechanics and, above all, is a cold-blooded liar. The following 10 Among Us Impostor tips will help you secure a win.



News



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Snowrunner

(PC/PS4)

39.99 €



I Am Bread

(PC/PS4/XBox One)

12.99 €



Supraland

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PS3	10
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Supraland

(PC/PS4/XBox 360)

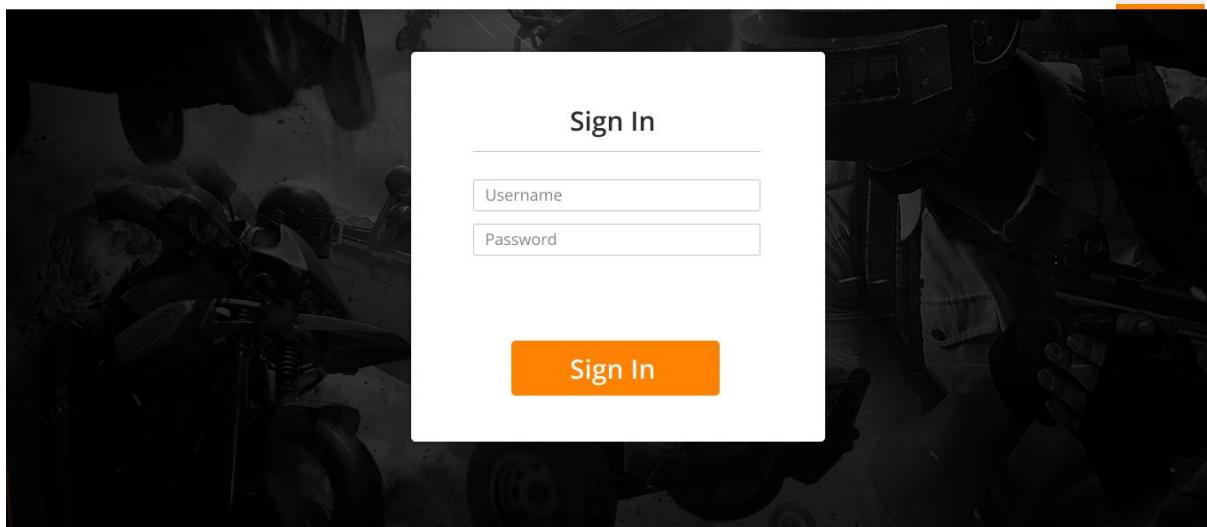
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Human Fall Flat

(PC/PS3/PS4)

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Slika 3.7. - *High-fidelity – Log in stranica*

Spider-Man: Miles Morales runs at 60 fps with ray tracing in new mode

By Antonio Musulin 17.11.2020.



At launch, Spider-Man: Miles Morales on PlayStation 5 was able to run at 60fps in Performance mode or at 30fps but with ray tracing in Fidelity mode, meaning that you'd have to pick between buttery-smooth frame rates or higher graphical fidelity while playing through the game. Thanks to a new mode added in an update, though, you can now run the game at 60fps and with ray tracing turned on.

The new mode is called "Performance RT," and you can turn it on in settings. "This is an alternate version of the 60 frames per second 'Performance' mode, adding ray-tracing by adjusting the scene resolution, reflection quality, and pedestrian density," according to the description of the new mode.

That means that you might notice a few graphical tweaks or slightly fewer NPCs on the streets of New York, but the pay-off should mean dramatically improved lighting effects without having to dip down to 30fps.



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Where we are going ?

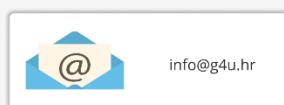


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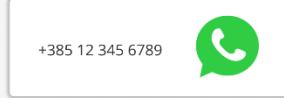


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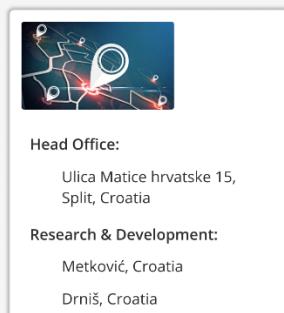
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Research & Development:

Metković, Croatia
Drniš, Croatia



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Product description

Assassin's Creed Valhalla is an open-world action-adventure game developed by Ubisoft. It follows the story of Eivor, a Viking warrior and her journey to the British Isles. The game features a rich history of the Viking era, including detailed environments, a deep narrative, and a variety of combat and exploration mechanics.



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The game follows Eivor as she explores the British Isles, fighting against the Saxon army and reclaiming her homeland. The game is set in the year 793 AD, during the time of the Viking invasions of England.

The game includes many historical figures, such as King Alfred the Great, and features a variety of combat styles, including sword and shield fighting, archery, and stealth.

Assassin's Creed Valhalla is available on PC, PlayStation 4, and PlayStation 5.

System requirements

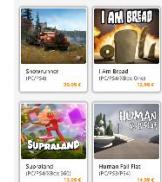
Processor: AMD Ryzen 5 3600 or Intel Core i5-9400F

Memory: 8GB RAM

Graphics: NVIDIA GeForce RTX 2060 or AMD Radeon RX 5700 XT

Storage: 40 GB available space

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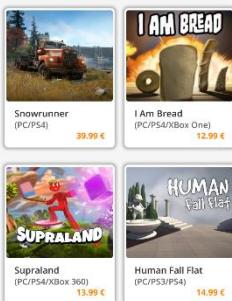
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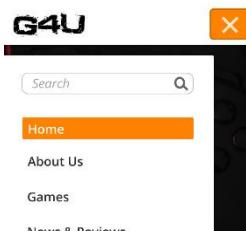
Cyberpunk 2077 has been delayed again, but is still set to launch this year. In a statement on Twitter, developer CD Projekt Red confirmed that the Cyberpunk 2077 release date has been pushed back by 21 days, and will now release on December 10.



Among Us Impostor tips: 10 ways to win as an impostor

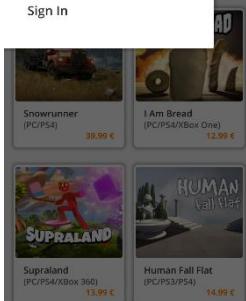
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Being an Among Us Impostor is not an easy job. A great Impostor is sneaky, takes advantage of the game mechanics and, above all, is a cold-blooded liar. The following 10 Among Us Impostor tips will help you secure a win.



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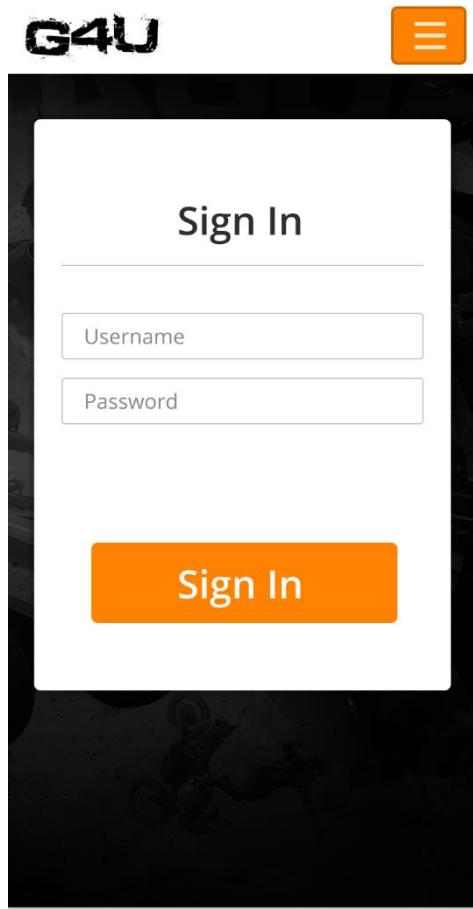
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4. Evaluacija prototipa

Na temelju principa i heuristika dizajna, prototip je poboljšan kako bi konačan proizvod imao što veću iskoristivost.

4.1. Heuristike iskoristivosti

Jacob Neilsen definirao je deset heuristika iskoristivosti za korisnička sučelja. U nastavku su navedene heuristike te načini na koji su provedene u ovom projektu.

4.1.1. Podudarnost između stvarnog svijeta i sustava

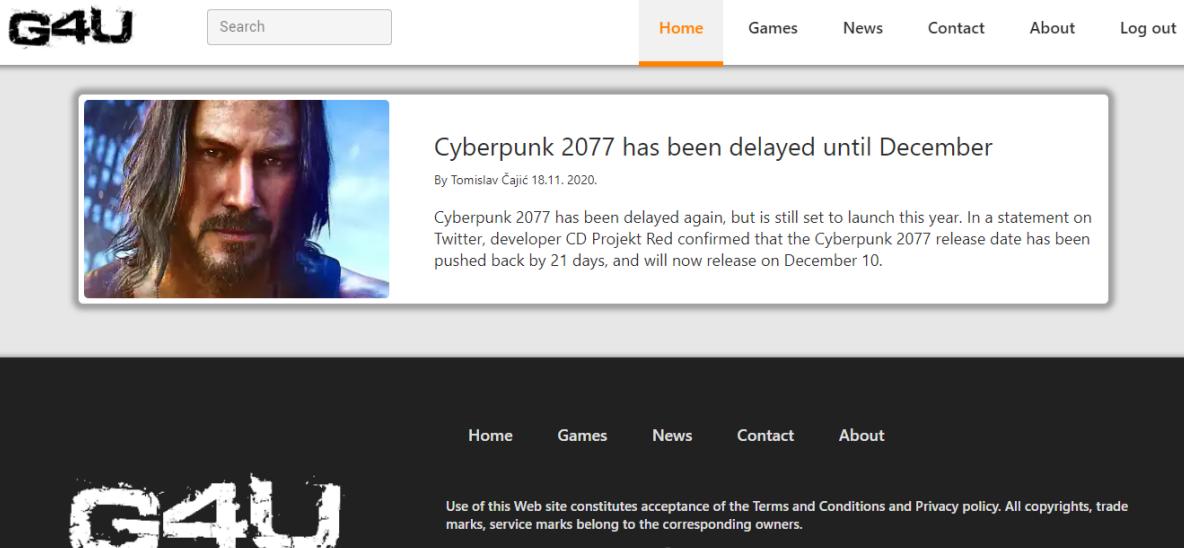
Sustav mora govoriti korisnikovim jezikom, odnosno koristiti izraze, fraze i pojmove poznate korisniku, a ne jezikom usmijerenim na sustav.

Web aplikacija koristi engleski jezik i jednostavne riječi koje bi trebale biti poznate korisnicima. Ovaj pristup omogućava da aplikaciju može koristiti što veći broj korisnika iz različitih zemalja.

4.1.2. Konzistencija i standardi

Korisnici se ne bi trebali pitati znače li različite riječi, situacije ili akcije isto, već sustav mora slijediti inicijalno postavljanje konvencije.

Budući da je projekt namijenjen za prikaz u web pregledniku, iz tog razloga koriste se standardi i konvencije specifične za prikaz podataka na webu. Navigacijska traka koja se nalazi na vrhu stranice, mijenja se u *menu* prilikom prikaza aplikacije na mobilnim uređajima. Kroz cijelu web aplikaciju koristi se samo jedan font i određene palete boja za pojedine komponente.

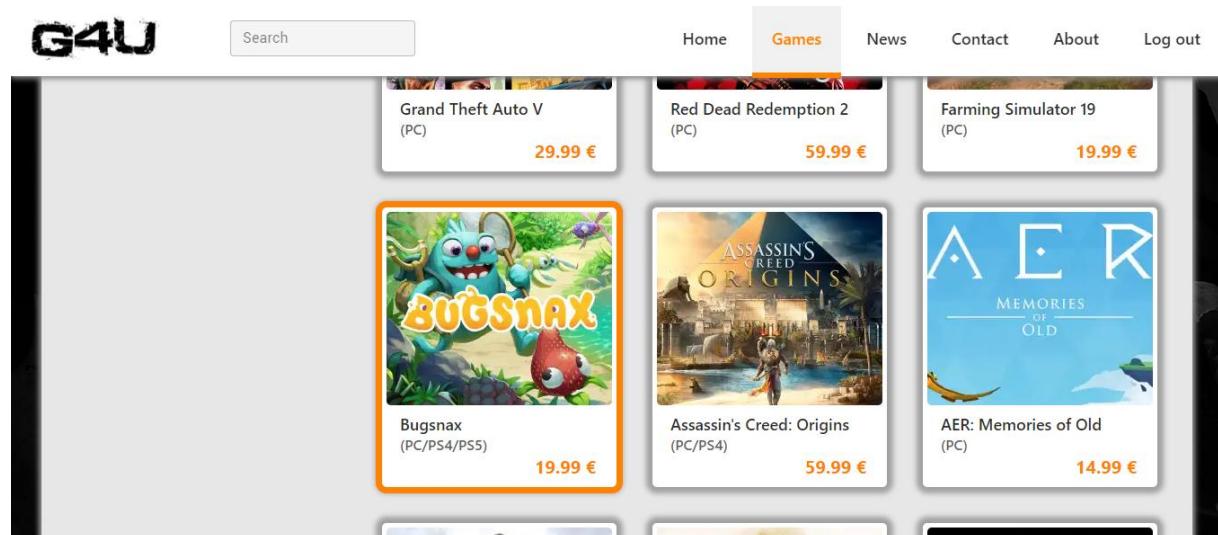


Slika 4.1. – Primjer konzistencije

4.1.3. Vidljivost statusa sustava

Sustav bi trebao u svakoj situaciji i u prikladnom vremenu informirati korisnika o tome što se događa.

U navigacijskoj traci, klikom na određenu stranicu, pojavi se indikator narančaste boje, tako da korisnik zna gdje se nalazi. Kada korisnik pređe mišem preko produkata i vijesti, kartice se obrube, što korisniku daju vizualnu informaciju koja je kartica za sada odabrana.



Slika 4.2. – Primjeri vidljivosti sustava

4.1.4. Korisnička sloboda i kontrola

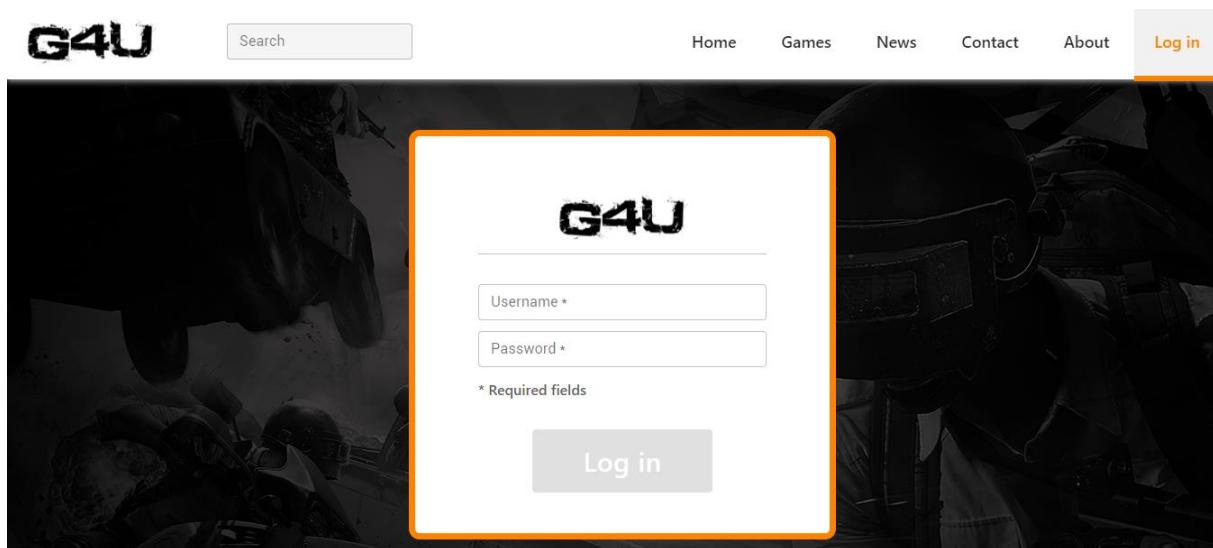
Korisnici često odaberu funkcionalnosti koje nisu željeli te je potrebno precizno definirati „izlaz u slučaju nužde“ kako bi napustili neželjeno stanje bez da moraju prolaziti kroz produženi dijalog.

U slučaju da korisnik klikne na jedan od filtera, korisnik će jednostavno pomoći ponovnog klika na taj isti filter moći poništiti prethodne posljedice. Također, klikom na logo web aplikacije, korisnik se vraća na početni zaslon.

4.1.5. Sprječavanje grešaka

Sprječavanje grešaka bolje je od bilo kakve poruke o grešci. Sustav je potrebno dizajnirati na način da se eliminiraju moguće greške ili da se korisnika upozori o mogućim greškama.

Za vrijeme prijave korisnika u sustav, dugme „Log in“ onemogućeno je sve dok se ne unesu potrebni podaci.

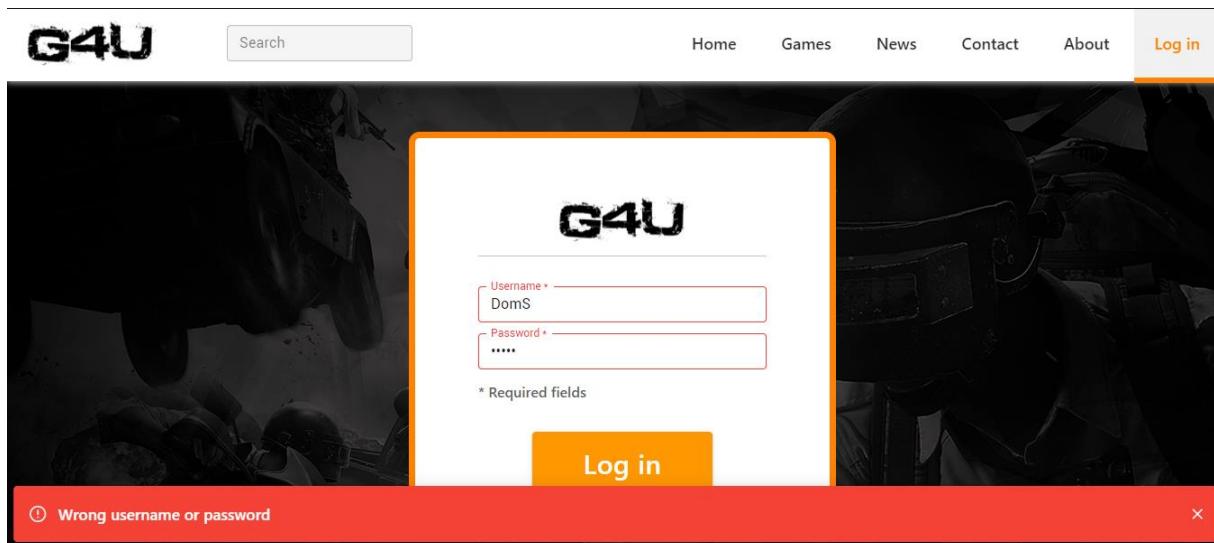


Slika 4.3. – Primjer sprječavanja grešaka

4.1.6. Detekcija i oporavak od grešaka

Obavijesti o greškama moraju biti prikazane na korisniku razumljiv način , prikaz problema mora biti očit, nedvosmislen i uključivati potencijalni način rješavanja problema.

Prilikom prijavljivanja u sustav, korisniku se prikaže pomoć ukoliko dođe do nekakve pogreške, odnosno šalje mu se povratna informacija u obliku popup prozora.

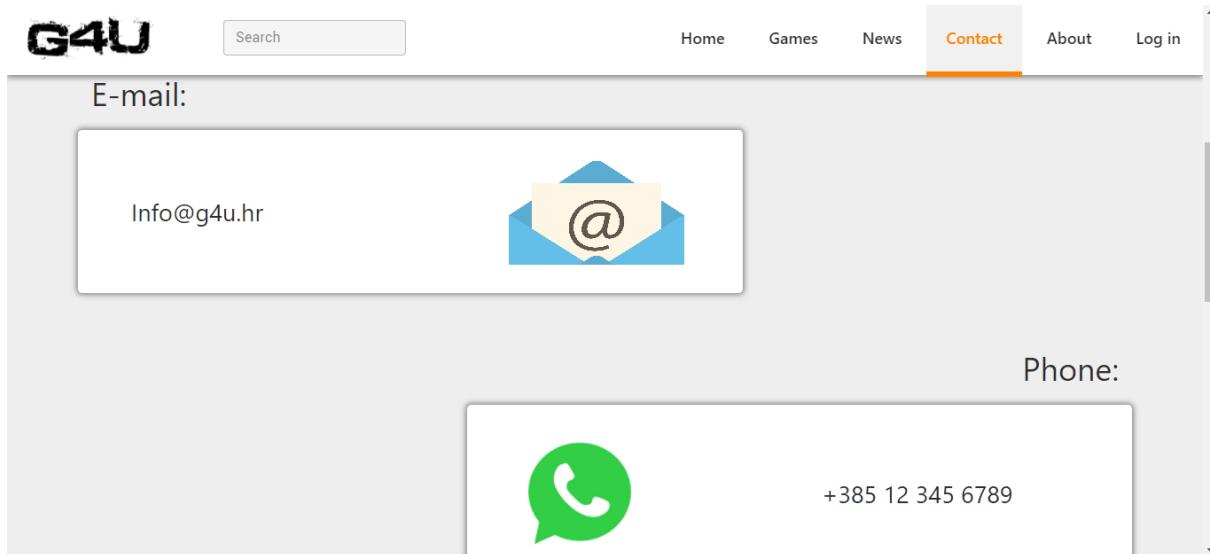


Slika 4.4. – Primjer detekcije i oporavka od grešaka

4.1.7. Prepoznavanje umjesto prisjećanja

Sustav treba minimizirati količinu podataka koju korisnik treba pamtiti. Korisnik ne bi trebao pamtiti podatke iz jednog dijaloga u drugi. Instrukcije za korištenje sustava trebaju biti vidljive kada je to prikladno.

Određeni podaci se ponavljaju na više stranica kako ih korisnik ne bi morao pamtiti. To su na primjer informacije o kontaktu, podaci o produktima i podaci o vijestima. Na stranici s kontaktima, uz svaku informaciju stoji i određena sličica koja korisniku olakšava rad s aplikacijom.



Slika 4.5. – Primjer prepoznavanja umjesto prisjećanja

4.1.8. Fleksibilnost i efikasnost korištenja

Ubrzavanja koja su često nevidljiva novim korisnicima, mogu ubrzati rad korisniku koji je upoznat sa sustavom. Sustav bi trebao biti takav da dobro odgovara i novom i uhodanom korisniku.

Da bi se korisniku olakšao izbor, produkti su podijeljeni u više kategorija, a za dodatnu pomoć u izboru, dodani su filteri koji prikazuju samo one proekte koji pripadaju određenoj kategoriji.

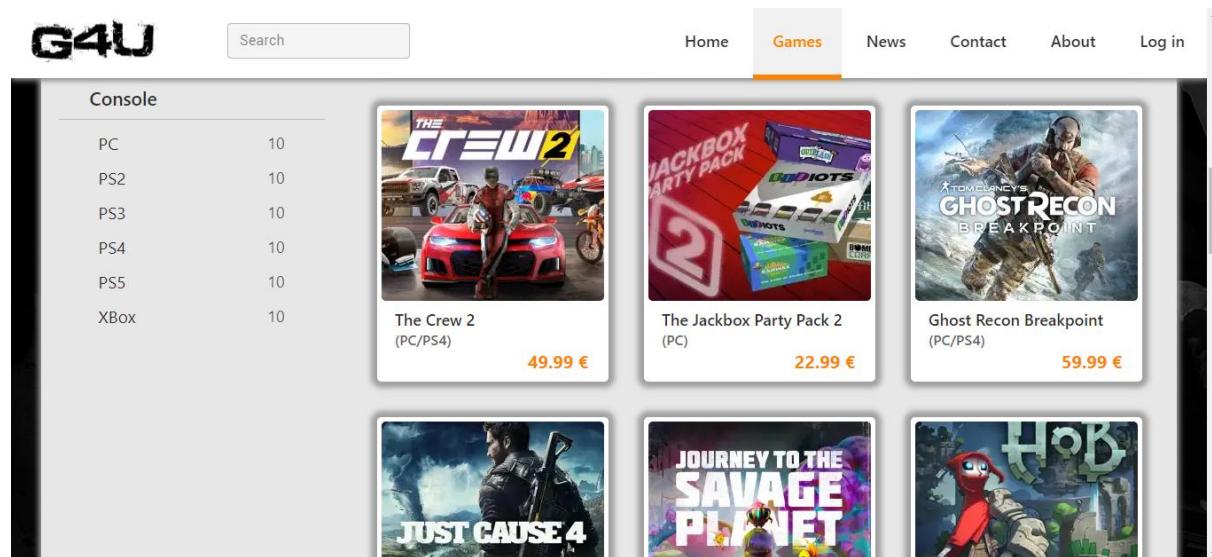
Console	
PC	10
PS2	10
PS3	10
PS4	10
PS5	10
XBox	10

Slika 4.6. – Primjer fleksibilnosti i efikasnosti korištenja

4.1.9. Estetika i minimalistički dizajn

Dijalozi ne smiju sadržavati informacije koje u tom trenutku nisu bitne ili se rijetko koriste. Svaka dodatna informacija na dijalozima konkurira postojećim, važnijim informacijama i tako smanjuje njihovu vidljivost.

Dizajn je zamišljen minimalistički tako da korisnik ne bi bio preplavljen različitim informacijama. Kartica za pojedini produkt sastoji se od slike video igre, njenog naziva, cijene te platforme za koju je predviđena.



Slika 4.7. – Primjer estetike i minimalističkog dizajna

4.1.10. Pomoć i dokumentacija

Iako bi bilo bolje da je sustav dizajniran na način da ga je moguće koristiti bez dodatne dokumentacije, nekad ju je nemoguće izbjegći. Pomoć mora biti lako dostupna i jasno objašnjavati funkcije koje su potrebne korisniku.

Zbog jednostavnosti ove web aplikacije, pomoć nije implementirana.

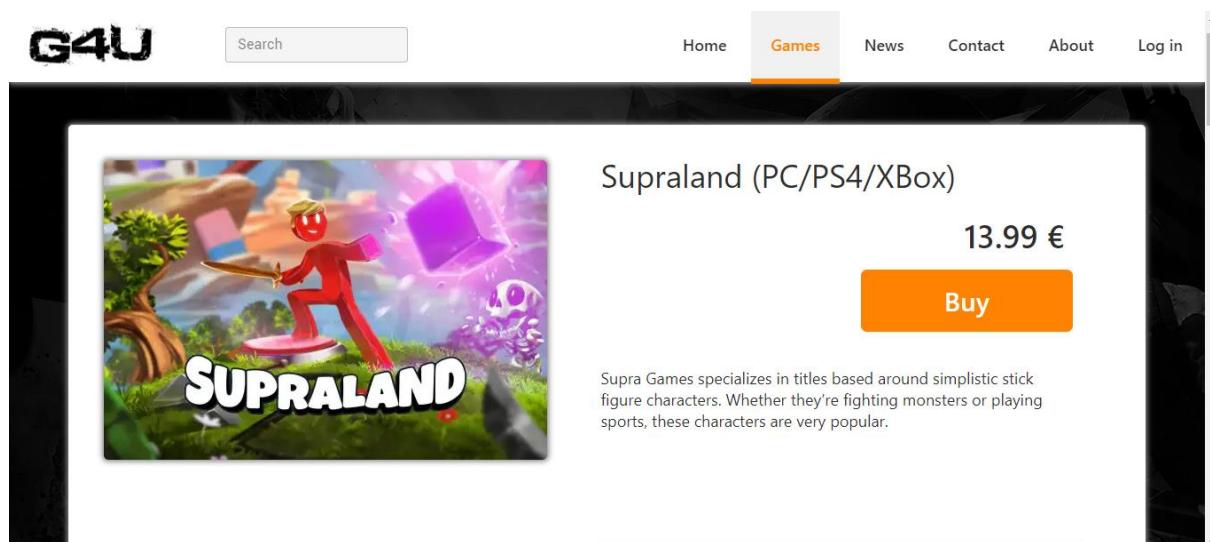
4.2. CRAP principi

CRAP je skup jednostavnih principa dizajna koji se mogu pratiti kako bi se napravio razumno dobar dizajn.

4.2.1. Contrast

Elementi koji imaju različitu namjenu ili različitu razinu važnosti, trebaju različito izgledati. Važniji elementi trebaju biti istaknuti.

U web aplikaciji, važniji naslovi označeni su velim fontom i istaknuti više u odnosu na običan tekst. Važniji gumbovi (prijava, kupnja) označeni su narančastom bojom. Footer je označen sivom bojom kako bi se stekla razlika između njega i ostatka stranice.

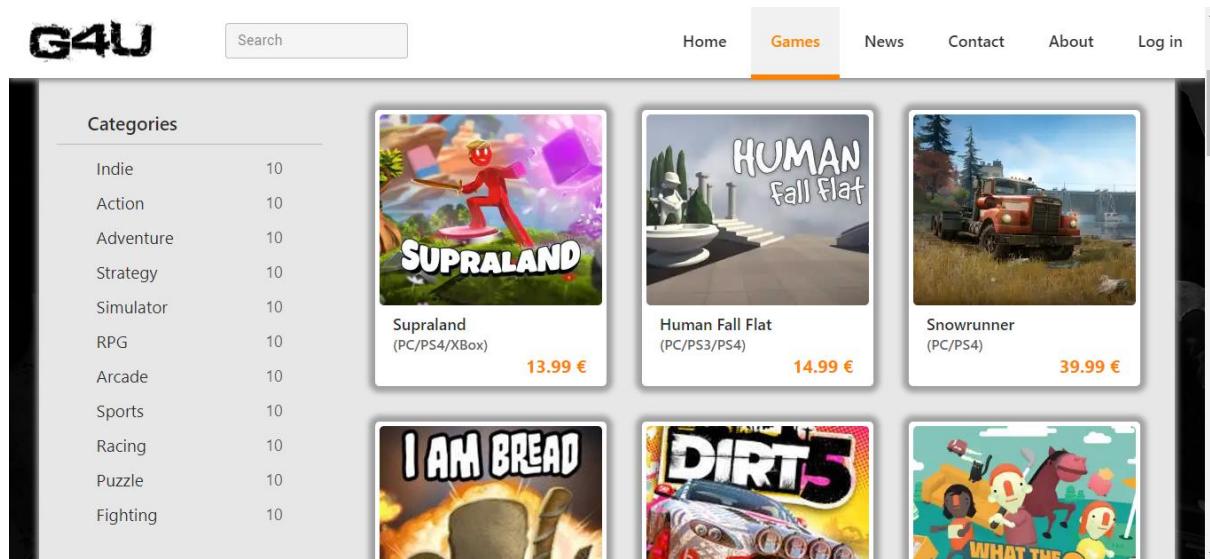


Slika 4.8. – Primjer contrast principa

4.2.2. Repetition

Elementi s istom namjenom ili važnosti trebaju izgledati isto. Ako se dosta različitih elemenata nalazi na stranici, stranica neće izgledati kohezivno.

U web aplikaciji postoji jedan osnovni tip slova, četiri osnovne boje (bijela, svijetlo siva, tamno siva i narančasta). Sve kartice koja prikazuju proekte su jednake. Gumbovi na različitim stranicama izgledaju jednak.



Slika 4.9. – Primjeri repetition i alignment principa

4.2.3. Alignment

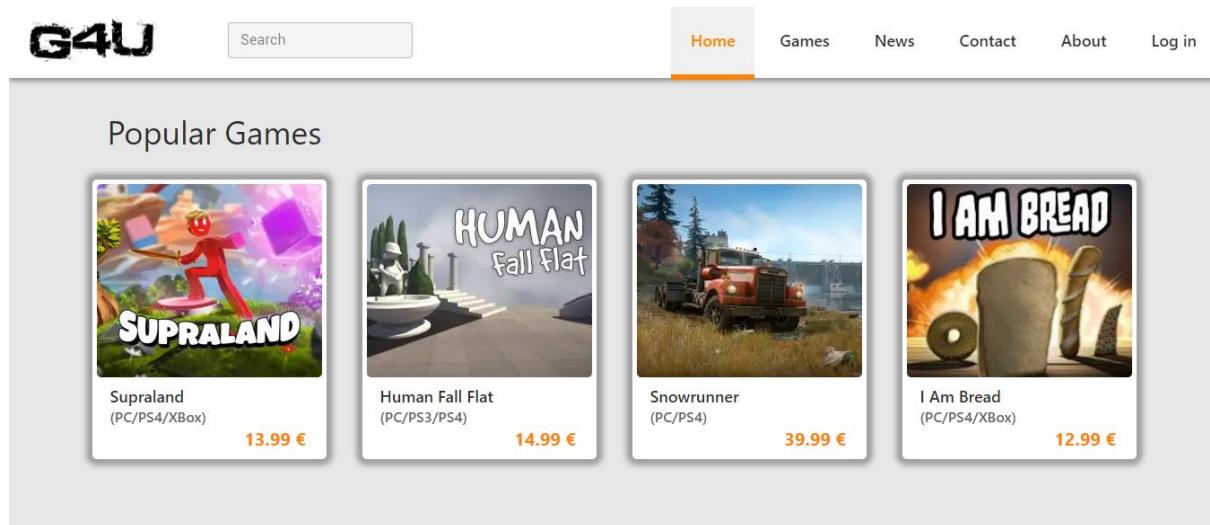
Na stranici ništa ne bi smjelo stajati proizvoljno, svaki element trebao bi biti povezan s nečim drugim. Čak i kada su poravnati elementi fizički razdvojeni jedan od drugog, postoji nevidljiva linija koja ih povezuje u oku i umu.

U web aplikaciji poravnanje se primjenjuje na svim prozorima, ovisno o elementima i njihovom grupiranju. Primjer poravnanja se može vidjeti na prethodnoj slici koja prikazuje kartice s produktima. Kartice su smještene u tri stupca, a unutar kartica nalazi se slika, naziv, platforma i cijena koji su smješteni na istom pravcu kao i elementi kartice pokraj.

4.2.4. Proximity

Elementi koji su povezani trebaju biti grupirani blizu, dok oni koji nisu povezani trebaju biti razdvojeni. Kada je nekoliko elemenata u blizini jedan drugome, postaju jedna vizualna grupa, odnosno smanjuje se broj vizualnih jedinica.

U web aplikaciji primjena ovog principa koristi se pri prikazu naslova pojedinih dijelova stranice što je vidljivo po odvojenosti glavnih naslova od pripadajućeg sadržaja.



Slika 4.10. – Primjer proximity principa

4.3. Teorije niske razine

Teorije niske razine kao što su Fittsov zakon i Hickov zakon predviđaju čovjekovo ponašanje i definiraju pravila koja olakšavaju korištenje sustava.

4.3.1. Fittsov zakon

Fittsov zakon govori da se povećanjem širine objekta vrijeme potrebno da se mišem dođe do tog objekta smanjuje. Prema ovom zakonu, elementi na rubu ekrana imaju beskonačnu širinu te se do njih dolazi najbrže.

Primjer Fittsovog zakona je dodavanje paddinga na linkove kako bi se dobila efektivno veća površina koju je moguće kliknuti.



Slika 4.11. – Primjer Fittsovog zakona

4.3.2. Hickov zakon

Hickov zakon govori da se povećanjem broja izbora povećava vrijeme donošenja odluke.

Da bi se korisniku olakšao izbor, produkti su podijeljeni u više kategorija te je na taj način korisniku omogućeno lakše donošenje odluka.

Games

Categories

Indie	10
Action	10
Adventure	10
Strategy	10
Simulator	10
RPG	10
Arcade	10
Sports	10
Racing	10
Puzzle	10
Fighting	10

Slika 4.12. – Primjer Hickovog zakona

5. Implementacija prototipa

Nakon evaluacije dizajna i donošenja potrebnih promjena, uslijedila je faza implementacije. Sustav je napravljen koristeći Gatsby i ReactJS, a postavljen je *online* na Netlify platformu (<https://games-for-you.netlify.app/>).

6. Zaključak

Tijekom izrade prototipa i na kraju web aplikacije, postalo je jasno koliko planiranje dizajna pojednostavljuje cjelokupnu izradu. Bez izrade *low fidelity* i *high fidelity* prototipa, krajnji produkt bi ispaо dosta drugačije od zamišljenog jer su otkriveni potencijalni problemi i nedostatci u sučelju koji su ispravljeni pri izradi web aplikacije.

Korištenje heuristika i CRAP principa osigurava dobar dizajn sučelja koji će biti intuitivan i jednostavan za korištenje.