

DIARIO

As a game engine, Godot has a very intuitive interface. It's easy to view the scene of your game or, in this case, the interfaces of an application from the scene editor. It's possible to build several immediately modifiable scenes with the inspector. Moreover, it's very useful to create nodes to connect several aspects of the project and to build a hierarchy between them.

I recognize that it's a very intuitive language, similar to Python and this is a big plus with respect to the other big competitors in the game engine industry: Unreal Engine and Unity that commonly use c# which is for sure less intuitive than GDScript.

Anyway, a **double-edged sword is that Godot has less features than the other two competitors**, so it has **less potential** in the tools you can use but at the same time it **avoids complexity** and sometimes useless features that you don't actually need.

Moreover, Godot is **runnable in Linux without any problems** and without losing quality or without having to deal with a worse version of the program with respect to the windows or mac ones as it happens in unreal or unity. Above all, **the real reason why Godot is a very good alternative in the industry is that it's runnable even if the computer you're working with, like mine when I was doing the project, has lots of constraints in the processing ability**. In fact, speaking from experience, I'm not able to run Unity in my pc because of severe problems with the ram and the cpu, instead with Godot I didn't face any issue of this type.

Lastly, Godot is the only one of the bunch that is a free and open source engine under MIT open source licence. In unreal engine the source is available but it's not open source and it is under a proprietary licence, in addition, to access unity source code you have to pay tons of money. Therefore, Godot is a very good alternative in the game engine industry especially if you have interest in working in a FOSS environment.

Initially, to familiarise myself with Godot, a program in which I'd never worked before, I followed several **online tutorials, learning by doing** what I needed for app creation. The fact that the program was not specifically designed for user interface development but rather for video games did pose some challenges in solving specific problems. However, I adapted what I learned to my usage context. I conducted several exports to mobile to better understand the functionalities and to ensure that everything I created with the program would work well once the apk was installed on an Android device.

After creating several drafts of user interfaces for personal use, with the sole purpose of getting to know the provided tool better, I received guidelines for the interface to be developed, along with preparatory sketches illustrating the intended structure of the prototype and the functionalities of the various buttons.

Having no prior experience with UI and UX design, I researched various online sources to understand if there were any fixed or recommended guidelines to follow. One key consideration is avoiding the use of pure black (#000000) or pure white (#FFFFFF) to prevent what is written from becoming a "punch in the eye" against the background. It is much more natural to use shades of gray as an alternative [28]. Additionally, care must be taken not to use overly saturated and "neon" colors, which would make reading difficult as they stand out much more than in a light theme. Looking at various dark mode UI prototypes,

I noticed that popular colors are purple, green, blue, and salmon pink. have better comprehension with positive polarity (black text on a white background) [26].

INTERVISTA

Q1 E' stato complicato progettare l'interfaccia tenendo conto delle considerazioni legate all'usabilità etc (dark mode, dimensione etc...)

Per quanto concerne le complicatezze legate all'usabilità dell'app direi che più che il dark mode o la scelta del font adatto, mi sono dovuta interrogare maggiormente in questioni come la **dimensione del app**, dal momento che era anche la prima volta che mi trovavo ad affrontare la realizzazione di un'applicazione per telefono dunque l'inesperienza mi aveva portato a fare diversi tentativi anche fallimentari prima di entrare nell'ottica dei giusti parametri da adottare per un'applicazione android. Un altro aspetto che, pur reputandolo scontato ho scoperto non esserlo, è la questione puramente di ui design della **scelta dei colori** e di **come far apparire i pulsanti** presenti nelle interfacce. **La reputavo una scelta piuttosto arbitraria e non di troppo conto ma, a seguito di una chiamata con Nicolò ho capito essere più importante del previsto**: effettivamente le correzioni che mi furono fatte notare e i conseguenti cambiamenti davano un altro aspetto alle interfacce e le rendevano molto più invitanti e coerenti.

ELI 1

Q2 Ci sono stati momenti i cui questi accorgimenti sono stati delle limitazioni?

Sicuramente il **primo impatto è stato un po' complicato**. Come affermato prima, ero piuttosto inesperta nel settore e per questo motivo **ho dovuto studiare bene come poter utilizzare gli strumenti assegnati, in particolar modo Godot**, per la realizzazione di un'app. Ho creato **diversi tentativi fallimentari** prima di riuscire a capire bene come poter creare un'app con le giuste dimensioni e che rispettasse le richieste che mi erano state fatte.

ELI 2

Q3 Conoscevi gli strumenti che abbiamo usato prima di questo lavoro?

No, **non avevo mai utilizzato nè Inkscape nè Godot**. Infatti, questo è stato di per sé un piccolo problema all'inizio, perché dovevo prendere mano con entrambi. ELI3

Q4 Quali sono state le difficoltà che hai incontrato?

Principalmente le difficoltà le ho riscontrate con Godot, oltre all'inesperienza già spiegata prima ed essendo questo il primo approccio che avevo allo strumento, ho dovuto studiare

per bene come poterlo sfruttare al meglio ai fini di ciò che desideravo. La difficoltà principale è stata che, **essendo Godot un game engine, non fosse così semplice trovare tutorial o forum che spiegassero bene come creare un'app (se non altro non una simile a come desideravo io)** nè risultava facile riuscire a risolvere i problemi legati a questa non trovando troppi aiuti o informazioni a riguardo su internet.

Per quanto riguarda **Inkscape**, non ho riscontrato particolari problemi essendo il suo utilizzo **piuttosto intuitivo, all'inizio mi sono trovata un po' spaesata nel riuscire a capire dove si trovassero gli strumenti o come poterli sfruttare al meglio**, ma nulla di troppo complicato. Sicuramente un grande problema che ho dovuto affrontare, ma che riguarda solo parzialmente gli strumenti interessati, è stato lo **sporadico crash** di questi programmi ma ciò era **dovuto principalmente al mio pc** che non riusciva a reggere troppi programmi contemporaneamente a volte. ELI 4

Q5 come le hai superate?

Per quanto riguarda **Godot**, **ho cercato di adattare al mio contesto** anche se, a volte, molto diverso da ciò che veniva consigliato dai tutorial o dai forum, **alcuni suggerimenti che venivano dati**. O delle altre volte andavo a logica in base a come sarebbero dovute andare le cose e mi informavo meglio al limite sul come **scriverla in linguaggio GDScript**, per altro linguaggio principalmente indirizzato allo sviluppo di videogiochi e che non avevo mai sentito prima di allora, **ciò ha reso più lento il processo di risoluzione dei problemi e di scrittura stessa, dal momento che, pur essendo simile ad altri linguaggi già conosciuti, dovevo impararlo da principio**. ELI 5

Q6 Che strumenti avresti usato altrimenti?

Probabilmente gli strumenti che erano di mia conoscenza allora, quindi **IDE per la programmazione in java e scenebuilder, che avevo visto in un corso del secondo anno per la parte grafica**. Tuttavia **sarebbero stati comunque meno intuitivi rispetto a Godot, che invece contiene in un'unica piattaforma sia una parte dedicata alla programmazione, che una particolare attenzione alla grafica dell'interfaccia (essendo nato come game engine 2d/3d)**. ELI 6

Q7 Ci sono cose che avresti voluto fare ma che a causa delle limitazioni del software non hai potuto?

Non ho nulla che mi venga in mente al momento. ELI 7

Q8 Ci sono stati momenti in cui hai “rimpianto” altri strumenti commerciali?

No, nemmeno questo. Malgrado i problemi elencati prima, **mi sono trovata bene** ad utilizzare Godot e Inkscape per creare quest'app. **Semplicemente, come in tutte le cose, avevo bisogno di un attimo per entrare nell'ottica e capire a fondo come sfruttare al meglio questi strumenti.** ELI 8

Q9 (se sì) perchè?

Q10 Pensi che userai questi strumenti in futuro?

Penso di sì, sono ottimi strumenti che hanno il grande **vantaggio di essere Open Source** e di conseguenza accessibili con facilità a tutti. Se dovessi ritrovarmi a realizzare un'applicazione penso di sfruttarli ancora e a maggior ragione se dovessi realizzare un videogioco. ELI 9

Q11 Consigliaresti ad altri di usare gli strumenti che abbiamo usato?

Sì, Inkscape è un'ottima alternativa gratuita a programmi a pagamento come Adobe Illustrator e Godot è piuttosto intuitivo soprattutto per la realizzazione di **videogiochi** e ha il vantaggio di poter avere oltre a una componente di programmazione vera e propria anche una di **interfaccia grafica** per poter cambiare parametri sulla visualizzazione del progetto senza dover scrivere linee di codice per farlo. Questo soprattutto lo rende molto **intuitivo per non esperti in programmazione.** ELI 10

Q12 Hai qualche commento generale?

E' stata una piacevole esperienza che mi ha insegnato tanto soprattutto sul mondo della programmazione di applicazioni e su questioni di ui/ux design di cui non ero al corrente e che non sono per nulla da prendere per scontato quando si tratta della realizzazione di interfacce utente. Mi ha fatto apprendere nozioni sull'utilizzo di strumenti che non conoscevo e che ora potrò sfruttare al meglio per progetti futuri. ELI 11

ENGLISH TRANSLATION

It was complicated to design the interface considering usability aspects, etc. (dark mode, size, etc...).

As far as the complications related to the app's usability are concerned, I would say that more than dark mode or choosing the right font, I had to focus more on issues like the app's size. This was also the first time I was developing a mobile application, so my inexperience led me to make several attempts, some of which failed, before I got a good grasp of the proper parameters to use for an Android application. Another aspect, which I assumed would be obvious but turned out not to be, was the purely UI design-related choice of colors and how to display buttons on the interfaces. I thought it was a fairly arbitrary decision, not too important, but after a call with Nicolò, I realized it was more important than I had anticipated. In fact, the corrections that were pointed out to me and the resulting changes gave the interfaces a different appearance, making them much more inviting and coherent.

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Moreover, Godot runs on Linux without any problems, without losing quality or having to deal with a worse version of the program compared to the Windows or Mac versions, as is often the case with Unreal or Unity. Above all, the real reason why Godot is a very good alternative in the industry is that it runs even if the computer you're working with, like mine when I was doing the project, has lots of constraints in processing ability. Speaking from experience, I was unable to run Unity on my PC due to severe problems with RAM and CPU, but with Godot, I didn't face any such issues.

Lastly, Godot is the only one of the bunch that is a free and open-source engine under the MIT open-source license. In Unreal Engine, the source is available but it's not open-source, and it is under a proprietary license. Additionally, to access Unity's source code, you have to pay a lot of money. Therefore, Godot is a very good alternative in the game engine industry, especially if you are interested in working in a FOSS (Free and Open Source Software) environment.

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that the program was not specifically designed for user interface development but rather for video games did pose some challenges in solving specific problems. However, I adapted what I learned to my usage context. I conducted several exports to mobile to better understand the functionalities and to ensure that everything I created with the program would work well once the APK was installed on an Android device.

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Were there times when these considerations were limiting? Certainly, the first impact was a bit complicated. As mentioned before, I was quite inexperienced in the field, and for this reason, I had to study well how to use the assigned tools, particularly Godot, to develop an app. I made several failed attempts before understanding well how to create an app with the right dimensions that met the requirements given to me. **ELI 2**

Did you know the tools we used before this project? No, I had never used either Inkscape or Godot. In fact, this was a bit of a problem at first because I had to get familiar with both. **ELI 3**

What difficulties did you encounter? Mainly, I had difficulties with Godot, aside from the inexperience already explained, since this was my first time using the tool. I had to study well how to best utilize it for my goals. The main difficulty was that, being Godot a game engine, it was not so easy to find tutorials or forums that clearly explained how to create an app (at least not one like I wanted). Nor was it easy to solve related problems as there was not much help or information available on the internet.

As for Inkscape, I didn't encounter any particular problems as it was quite intuitive to use. Initially, I was a bit disoriented trying to figure out where the tools were or how to best use them, but nothing too complicated. A significant problem I faced, but only partially related to the tools, was the occasional crash of these programs, which was mainly due to my PC not being able to handle too many programs at once. **ELI 4**

How did you overcome them? Regarding Godot, I tried to adapt some suggestions from tutorials or forums to my context, even if sometimes they were very different from what was recommended. Other times, I went by logic, based on how things should go, and better informed myself on how to write it in GDScript, a language primarily geared towards video game development that I had never heard of before. This slowed down the problem-solving

and writing process, as I had to learn it from scratch, even though it was similar to other languages I already knew. **ELI 5**

What tools would you have used otherwise? Probably the tools I knew at the time, such as an IDE for programming in Java and SceneBuilder, which I had seen in a course during my second year for the graphic part. However, they would still have been less intuitive than Godot, which combines both programming and graphical interface design (being originally a 2D/3D game engine) in a single platform. **ELI 6**

Are there things you would have liked to do but couldn't due to software limitations? Nothing comes to mind at the moment. **ELI 7**

Were there times when you "regretted" not using other commercial tools? No, not at all. Despite the problems mentioned earlier, I found using Godot and Inkscape to create this app quite satisfactory. Like with everything, I just needed a moment to get into the right mindset and fully understand how to make the most of these tools. **ELI 8**

(If yes) Why?

Do you think you will use these tools in the future? I think so. They are excellent tools with the great advantage of being Open Source and therefore easily accessible to everyone. If I were to develop another application, I think I would use them again, and even more so if I were to create a video game. **ELI 9**

Would you recommend others use the tools we used? Yes, Inkscape is an excellent free alternative to paid programs like Adobe Illustrator, and Godot is quite intuitive, especially for developing video games. It has the advantage of providing both a programming component and a graphical interface to change project visualization parameters without needing to write code. This makes it very intuitive, especially for those who are not experts in programming. **ELI 10**

Do you have any general comments? It was a pleasant experience that taught me a lot, especially about app programming and UI/UX design, which I was not aware of and which should not be taken for granted when developing user interfaces. I learned about tools I didn't know before, which I can now use more effectively in future projects. **ELI 11**

THEMATIC ANALYSIS

T5 Difficulties in implementing the features

//Elisa claims that dark mode was easy to but the dimensions took a little more effort **ELI 1**

//Elisa claims that the visual design of the interface is a challenging and important aspect of a GUI development ELI 1

T1 - Positive impressions in the use of FLOSS

Technical positive features noted

//she would have used java e scene builder, but they would have been less intuitive in comparison to godot - ELI 6

//Godot was good as it contains both programming IDE and a part specifically dedicated to graphic elements - ELI 6

//There were no limitations given by the tools used ELI 7

//Inkscape was easy to use and easy to find documentation ELI 4

//The tools used did not give any problem besides the learning curve ELI 8

Social/emotional satisfaction given by using FLOSS

//Elisa claims that she will use them again ELI 9

//Elisa would recommend the use of Inkscape as it is free and as good as proprietary software ELI 10

//Elisa appreciates the accessibility of FLOSS ELI 9

//Elisa claims that using the software was a good experience (emotionally) ELI 11

//multiplatform without loss of content - ELI 1

T2 - Difficulties in FLOSS

//Godot has less documentation

T3 - Lack of FLOSS education

Difficulties given by using the software for the first time

//it took a few attempts before making a fully functioning app with godot ELI 2

//Godot was more difficult to use in comparison to Inkscape ELI 4

//the PC crashed as it was a little outdated ELI 4

Lack of education

//Lack of training for these tools made the process less smooth ELI 3

//it was the first time she tried to use this tools ELI 2

//Elisa didn't knew Godot nor Inkscape ELI 3

//Elisa didn't know those tools before this project ELI 3

Lack of documentation/learning resources

//it was difficult to find documentation and tutorials about Godot ELI 4

//Lack of documentation about godot for GUI prototyping ELI 5
