ISSUE #1

GLITCH 4 GIRLS

MAGAZINE

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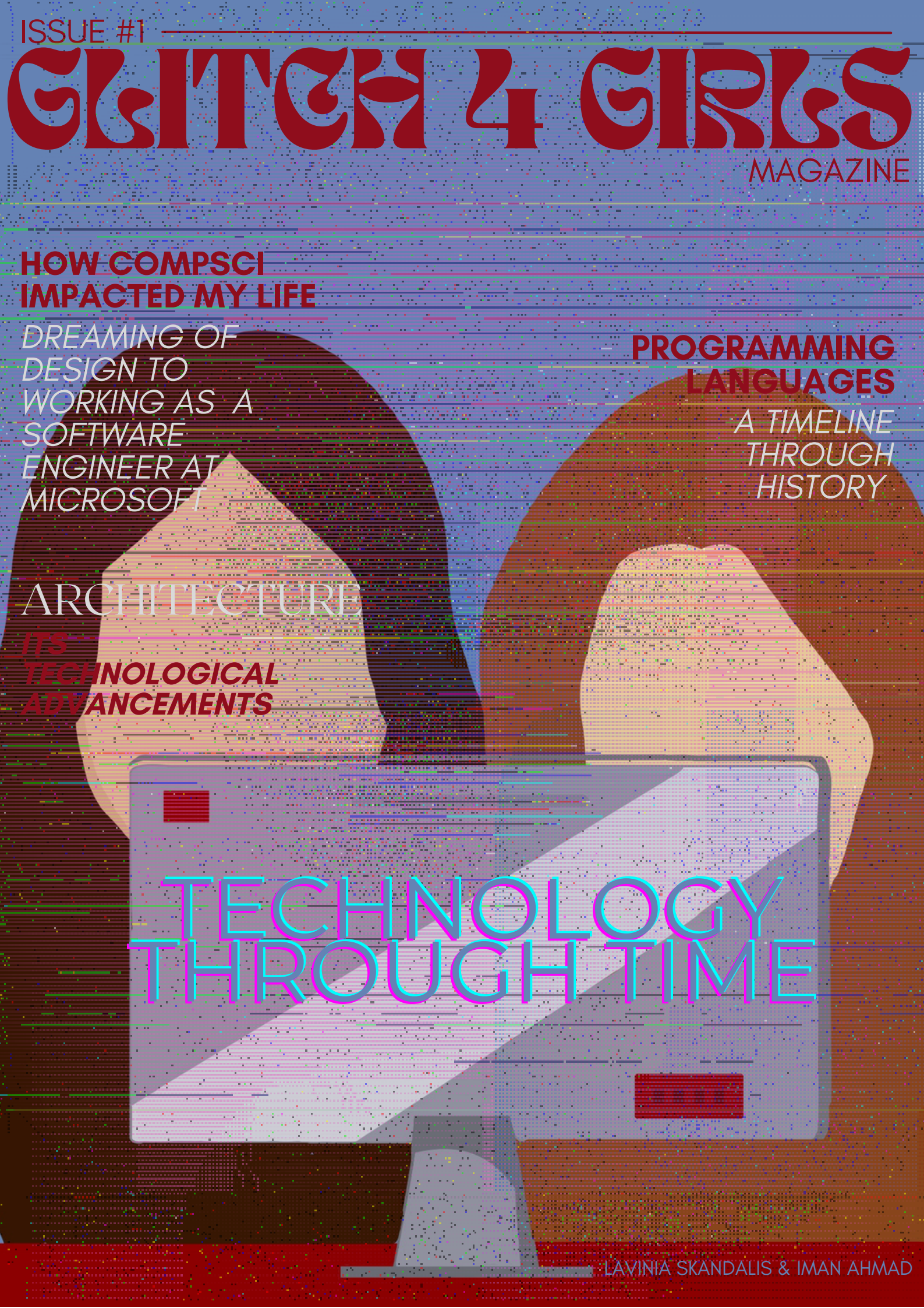

TECHNOLOGY THROUGH TIME

LAVINIA SKANDALIS & IMAN AHMAD

Step into the new world of architecture

In order to understand the impact of technology and digitisation on the evolution of architectural practice, it is essential to step back into history. In this context, the industrial revolution was a key period during which new building technologies were being employed to create a modern world we wanted to live in. Glass, steel, cast iron, and reinforced concrete was now being mass produced, and this allowed architects to reconsider design through concepts of form, function and pure creativity. Building ideas which seemed impossible previously, had now become feasible. A great example of this was the innovative use of glass and steel in the construction of the extraordinary Crystal Palace in 1851.

Crystal Palace, Hyde Park London.

Villa Savoye, France

During the 1900s, concepts of modernism emerged in the West as a response to these rapid technological advances, with a belief that design and technology could transform society. Architects such as Le Corbusier, became fascinated by contemporary materials, construction methods and new architectural ideas. Le Corbusier designed one of the most notable constructions of modernist architecture of the time - Villa Savoye, Poissy, (1928-30), based on his 'Five Points of a New Architecture'. He was able to elevate the building above the groud, giving the structure a weightless effect as it appeared to defy gravity. The strength of the reinforced concrete pilotis allowed for large horizontal ribbon windows, and the open plan of the building was made feasible by the elimination of load-bearing walls. Contemporaries followed suit, and it is important to highlight the achievements of Eileen Gray and Lina Bo Bardi, not only for their architectural excellence, but also for their ability to assert their presence in the male-centric world of Modernism.

Architectural Plans of Villa Savoye, Depicting the Open Plan Interior

Fast forward to the 21st century, technology has had a monumental impact on architecture - both in material and production, as well as in the practice itself. The digital transformation of architecture through forms of computer-aided design (CAD) and building information modelling (BIM) revolutionised the productivity and efficiency of designing. Designers are now able to develop a multitude of options, illustrating their ideas vividly, and analysing the feasibility of each in minutes, allowing them to make more considered decisions. Drawings are now easier to revise and transport, saving space, improving quality, and producing more realistic imagery. Proposals are presented through rendering softwares and virtual reality experiences, allowing one to experience first-hand what it would be like to walk through buildings being designed. Architects, engineers and designers are able to work collaboratively, and even remotely, something which was previously unimagined in architecture - a field which had once prided itself on hand drawings and physical models.

Rendered Image Using Endscape

The use of these new softwares facilitated daring innovations in building design to emerge, leaving a considerable impact on the social attitude around the built environment and what it symbolised. Architects began to design inventive structures, such as Zaha Hadid's 'Magazine Restaurant' (2009-13), which was designed as part of the extension to the Serpentine Sackler Gallery in London, and acted as a connection between the old and new.

The Magazine, Hyde Park London

Some architects of the older generation may poke fun at young designers for lacking the nuanced character-building that had been instilled in them through the hard work of hand drawing and physical production. Even if this may be true, I believe that the use of digital design has more than sufficiently compensated for any such loss and moreover, given us tools that encourage creativity, innovation and optimal use of resources. This will positively impact society, one building at a time.

A Selection of Architectural Renders and Digital Images Produced By Students of The Bartlett School of Architecture

Sarah | Pakistan

How CompSci has impacted my life

From a teen with a passion for design to working at Microsoft, this is the story of a Software Engineer's journey to falling in love with Computer Science

My life has taken many unusual paths as you will quickly find out in this piece. As a latina born and raised in Argentina who grew up carrying around a drawing pencil and paper everywhere she went, I never in a million years imagined I would end up in the United States working as a software engineer.

All throughout my teenage years I was convinced I was meant to be a designer. With that goal set front and center in my mind I started university in my home country to become an apparel designer. You see, I didn't think there was anything else out there I would enjoy pursuing. I loved drawing, I was very creative, with a hyperactive mind, and an aversion to math and sciences.

I was able to do well in those subjects at school but I certainly didn't enjoy them. I would have much rather been drawing. To add to this huge gap between where I was and what I would end up doing in the future, I didn't even know that Computer Science even existed as something you studied at school. But had I known about it then, I know that 17-year-old Anto wouldn't have thought of herself as someone capable of doing that with her life.

Fast forward a decade and my career is the complete opposite from what I ever imagined – and I love that! Over the course of that decade I got to know myself, what I wanted out of life, my work style, what I truly enjoyed doing day to day, and who I wanted to be working with (at the time I was working by myself and I quickly realized that felt very lonely to me).

During the span of those years I also came to discover Computer Science. And let me tell you, deciding to study this and becoming a Software Engineer completely changed my life. These are the 5 ways in which Computer Science has impacted my life.

Computer Science showed me that being creative and being in a technical field are not mutually exclusive: This was my biggest misconception, right after thinking that I needed to be a math genius to be able to study computer science. The truth is being in this field opens you up to a whole new type of creativity.

Computer Science has increased my confidence: It is no secret that coding is hard. I have been intimidated by this from the second I decided to switch to CS. The rewarding thing about having stuck with it even though I thought I couldn't do it is that I was able to prove myself wrong. I showed myself that I can do "hard things".

Computer Science got me internships and a full time job at one of the biggest companies in the world: Before I even knew what computer science was, I used to see on the news what life was like working at big tech companies thinking that was something completely unattainable. Yet I somehow managed to work at Microsoft many years later. One of my proudest accomplishments to date.

Computer Science has increased my interest in ethics and algorithmic accountability: Technology is great, but there are a lot of things that can go wrong with it too. Being a part of this field has fostered my interest in how technology can negatively affect minorities and what we can do to prevent that from happening.

Computer Science has and continues to help me change the world around me: Karlie Kloss calls coding your "superpower". That is exactly what coding has become for me. The superpower that has allowed me to bring my vision to life, on and off the computer screen. The superpower that allowed me to completely transform my life. Now that I am in a better place, I hope to use this same superpower to help empower others.

Antonella | Argentina

Technology : how it helped me lead my orchestra through COVID

...a concertmaster's perspective

Playing in an orchestra requires a great deal of coordination because you need to be in perfect synchronization with all the other players. Additionally, you need to balance your dynamics to match the other players, as well as your bow strokes (for string instruments). Personally, an orchestra was a great opportunity to learn how to further improve my violin skills because it enabled me to learn how to better listen to myself and other musicians, and helped build my coordination and communication skills on stage. Communicating with fellow players is crucial when playing in a group – be it a glance before a section starts, slowing down in certain areas of the music, or moving in a uniform fashion which appears natural, and unplanned to the audience. The presence of covid made many of these vital aspects of an orchestra impossible to achieve.

During covid, my orchestra's performances turned virtual. Instead of rehearsing weekly together, we practiced our parts independently and each recorded the music separately (using earphones with a backing track to ensure everybody was playing at the same tempo). The recordings would then be layered over each other to produce an orchestral performance. An issue that arose with this was that everyone's dynamics were different. This may have been due to the musicians' playing or the quality of the recording itself. Because of this, each recording had to be adjusted accordingly, to ensure all players could be heard equally. This is just one minor inconvenience of many; but along with these, there are plenty of reasons as to why I enjoyed the experience of playing in an orchestra during covid.

Firstly, some of our rehearsals turned into classes teaching us about orchestras and analyzing orchestral works and performances. Not only did this introduce me to new pieces, but it also helped me further understand my role as a first violinist and concertmaster, which improved my ability to successfully lead the orchestra and communicate with other sections. Moreover, when we were able to resume in-person rehearsals, I noticed a great improvement in the orchestra's coordination and ability to listen to one another, even with months spent rehearsing independently – this proved that understanding your role within an orchestra can really improve your auditory awareness while playing, resulting in a more synchronized and put-together performance.

We were very fortunate to be able to adapt to becoming a virtual orchestra rapidly, and in my opinion, the experience of going online for a few months brought us closer together as an orchestra, and gave me the opportunity to learn from other orchestras and various aspects of their performances. Technology has helped our orchestra, as well as many across the world, to be able to grow and flourish together through a time where in-person rehearsals just weren't possible.

Jeannette | Australia

Timing Technology in... Swimming

Living in a world where technology is discretely implemented into almost every aspect of sport, many may take the objectivity and equitability of machinery for granted. However, this fairness had not always been present to deliver justice to competing athletes – it took the controversy of Devitt and Larson's Olympic swim race to catalyse the creation and use of these unbiased electrical instruments.

On a cool summer night in the year 1960, 10,000 spectators at the eagerly waited for the beginning of the men's 100-meter freestyle finals at the 1960 Rome Olympics. Two of the competition's most anticipated swimmers were about to step onto the stage – Team Aussie's Devitt and Team USA's Larson. Larson had swum the fastest time of the competition in the prelims earlier in the competition, entering finals with a time of 55.7 seconds and Devitt came in close second with a time of 56.0 seconds. With a bang, the finals for the Men's 100m freestyle began.

The crowd held in baited breaths as they watched the race. Devitt and Larson presented a heart-stopping show, neither clearly besting the other for the entirety of the race – and the matter of Olympic gold came down to their final touch at the wall. The timekeepers collectively agreed that Larson edged a win over his competitor with a mere 0.1 second lead and to them, the rightful champion was Larson. However, the final rankings of the race did not reflect this.

In the 1960s, finishing places were determined by the Swimming Federation. They had 24 judges placed on the sidelines of the pool, whose jobs were to determine who they believed to have come in which place through the view of the naked eye. 6 randomly chosen judges out of those 24 would then be asked for their opinions, and whichever swimmer was chosen by the majority to have come first would then be given Olympic Gold.

However, in the case of Larson and Devitt, this decision had come down to a tie. Three judges believed Larson to be the winner and the other three Devitt. Therefore, the Federation's chief judge, Hans Runstromer of Germany, proclaimed the final verdict – both Larson and Devitt would be given the same finishing time, but only Devitt would be crowned champion.

This arbitrary result cost Larson his only chance at an Olympic gold medal in the event, and this incident shook the sport to its core. How could a competitive sport like swimming be enjoyed by athletes or viewers if placements could be twisted and manipulated by bias and uncertainty?

Therefore, when the Omega Swimming Touchpads were implemented at the Pan-American games in 1967, the sport was revolutionised. By eliminating the use of human judges and replacing them with cutting-edge technology, finishes within a second of each other could finally be clearly differentiated from each other, serving justice to the rightful champions, whether their title came from a 3 second difference or a 0.03 second difference.

One such example of the significance of this new implementation was seen in Beijing 2008, where the greatest swimmer of all time, Phelps, had bested Cavic by the smallest possible margin – 0.01 seconds. Although there was speculation over the actual winner by Phelps and Cavic supporters alike, the presence of the electronic timing system gave the world all the evidence they needed to proclaim Phelps as the rightful world-record holder of the men's 100-meter butterfly.

From using technology to increase accuracy of timekeeping, refereeing or equipment design, machinery is consistently more reliable than human judgement. Consequently, it can only be expected that there will be increasingly more emphasis on scientific methods to regulate sports as time goes on to create the ideal environment for competition with the help of technology.

Yuchen | China

Programming languages in the 20th century... a timline

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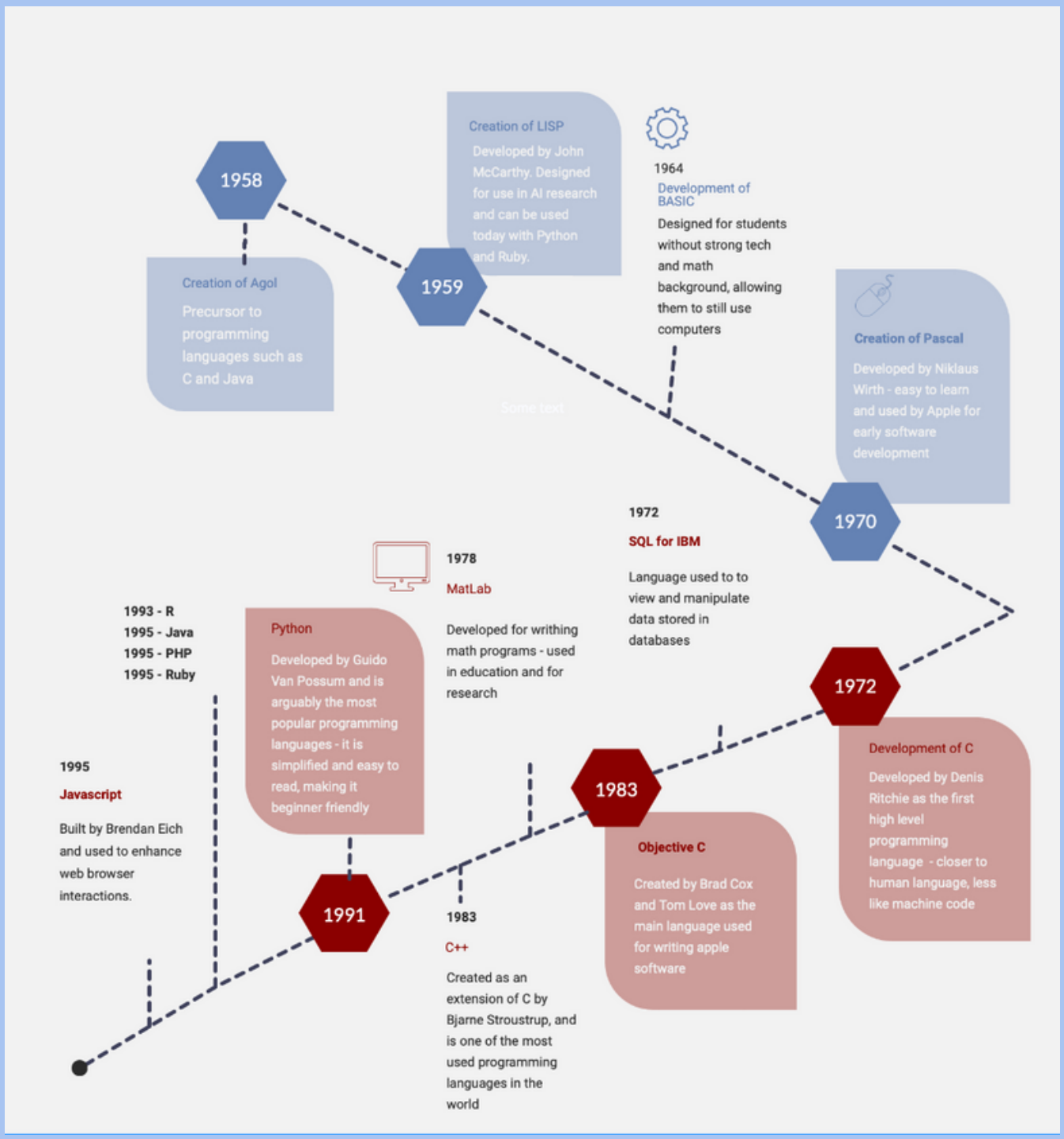

Lalia, Lavinia, Sophia


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