

CS 405 Assignment 1 Report

This computer graphics assignment aims to visualize a statistic graph with using SVG elements. A dataset was chosen from the TUIK website to use as a statistic resource. “Deaths by month and sex 2009-2022” was used as a dataset. However, only deaths in 2022 were used to visualize an SVG graph. The used data is indicated in a red box in **Figure 1**.

Ay ve cinsiyete göre ölümler, 2009-2022																
Deaths by month and sex, 2009-2022																
Ay-Month	Cinsiyet-Sex	Yıl-Year														
		2009	2010	2011	2012	2013	2014	2015	2016	2017 ⁽¹⁾	2018 ⁽¹⁾	2019 ⁽¹⁾	2020 ⁽¹⁾	2021 ⁽¹⁾	2022	
Toplam	Toplam-Total	369 703	366 471	376 162	376 520	373 041	391 091	405 528	422 964	426 857	426 785	436 624	509 048	566 485	504 839	
Total	Erkek-Male	203 653	200 445	206 505	207 634	205 439	213 682	222 029	231 589	233 661	233 138	238 367	285 160	309 322	275 531	
	Kadın-Female	166 050	166 026	169 657	168 886	167 602	177 409	183 499	191 375	193 196	193 647	198 257	223 888	257 163	229 308	
Ocak	Toplam-Total	34 877	30 525	35 347	37 085	33 306	39 581	34 918	43 871	43 793	38 883	48 821	42 014	46 955	53 875	
January	Erkek-Male	18 917	16 601	19 073	20 342	18 178	21 053	19 047	23 555	23 401	21 096	25 837	22 963	26 179	29 281	
	Kadın-Female	15 960	13 924	16 274	16 743	15 128	18 528	15 871	20 316	20 392	17 787	22 984	19 051	20 776	24 594	
Şubat	Toplam-Total	31 212	28 580	34 559	33 232	30 111	30 895	32 870	36 355	36 202	35 091	36 676	35 029	36 917	53 116	
February	Erkek-Male	16 958	15 505	18 548	17 851	16 431	16 540	17 830	19 578	19 573	18 984	19 683	19 137	20 341	28 908	
	Kadın-Female	14 254	13 075	16 011	15 381	13 680	14 355	15 040	16 777	16 629	16 107	16 993	15 892	16 576	24 208	
Mart	Toplam-Total	33 605	31 116	33 100	33 047	31 697	33 661	37 925	34 455	36 952	36 414	37 035	37 683	43 086	46 379	
March	Erkek-Male	18 527	16 999	17 984	18 142	17 367	18 319	20 657	18 812	20 165	19 818	20 144	20 788	23 764	25 585	
	Kadın-Female	15 078	14 117	15 116	14 905	14 330	15 342	17 268	15 643	16 787	16 596	16 891	16 895	19 322	20 794	
Nisan	Toplam-Total	30 543	29 202	29 377	30 357	29 387	31 548	34 983	32 661	34 116	34 255	35 058	38 368	51 133	38 557	
April	Erkek-Male	16 868	16 110	16 204	16 749	16 116	17 231	19 173	17 911	18 888	18 840	19 189	21 204	28 330	21 047	
	Kadın-Female	13 675	13 092	13 173	13 608	13 271	14 317	15 810	14 750	15 228	15 415	15 869	17 164	22 803	17 510	
Mayıs	Toplam-Total	31 308	29 898	30 451	29 472	30 483	31 841	33 497	33 261	34 296	34 161	35 610	35 122	46 203	38 167	
May	Erkek-Male	17 338	16 451	16 853	16 378	16 850	17 578	18 377	18 497	19 047	18 671	19 491	19 302	25 740	21 105	
	Kadın-Female	13 970	13 447	13 598	13 094	13 633	14 263	15 120	14 764	15 249	15 490	16 119	15 820	20 463	17 062	
Haziran	Toplam-Total	29 252	29 015	28 867	30 578	29 611	31 060	30 590	33 897	32 987	33 053	34 549	33 654	38 030	35 423	
June	Erkek-Male	16 109	16 098	16 065	16 817	16 395	17 122	16 721	18 440	18 096	18 194	18 872	18 873	20 990	19 419	
	Kadın-Female	13 143	12 917	12 802	13 761	13 216	13 938	13 869	15 457	14 891	14 859	15 677	14 781	17 040	16 004	
Temmuz	Toplam-Total	29 932	31 877	32 236	32 893	29 963	32 187	33 854	34 628	36 456	36 235	34 719	38 955	43 744	40 997	
July	Erkek-Male	16 455	17 556	17 698	17 966	16 621	17 719	18 228	19 177	19 881	19 895	19 290	21 466	23 294	22 079	
	Kadın-Female	13 477	14 321	14 538	14 927	13 342	14 468	15 626	15 451	16 575	16 340	15 429	17 489	20 450	18 918	
Ağustos	Toplam-Total	28 330	34 424	28 204	29 698	30 922	32 921	34 285	34 491	33 694	36 046	35 213	42 788	53 339	43 076	
August	Erkek-Male	15 799	18 282	15 605	16 605	17 103	18 066	18 582	18 845	18 518	19 753	19 219	23 968	28 436	23 330	
	Kadın-Female	12 531	16 142	12 599	13 093	13 819	14 855	15 703	15 646	15 176	16 293	15 994	18 820	24 903	19 746	
Eylül	Toplam-Total	27 065	28 622	28 015	28 781	28 709	29 713	31 038	32 071	32 531	33 325	32 055	43 989	50 332	35 535	
September	Erkek-Male	15 045	15 933	15 481	16 269	15 937	16 372	17 246	17 802	17 930	18 354	17 870	24 880	27 270	19 636	
	Kadın-Female	12 020	12 689	12 534	12 512	12 772	13 341	13 792	14 269	14 601	14 971	14 185	19 109	23 062	15 899	
Ekim	Toplam-Total	29 874	30 639	31 358	29 752	32 309	33 227	32 449	34 485	34 773	35 278	34 221	42 784	51 980	37 340	
October	Erkek-Male	16 570	16 860	17 539	16 549	17 846	18 421	18 080	19 146	19 322	19 393	18 930	24 468	28 199	20 528	
	Kadın-Female	13 304	13 779	13 819	13 203	14 463	14 806	14 369	15 339	15 451	15 885	15 291	18 316	23 781	16 812	
Kasım	Toplam-Total	30 936	30 356	31 425	29 494	30 843	31 822	33 526	34 743	34 727	35 410	34 506	57 487	52 467	39 040	
November	Erkek-Male	17 092	16 595	17 253	16 299	17 045	17 448	18 625	19 102	19 124	19 264	18 996	33 126	28 292	21 325	
	Kadın-Female	13 844	13 761	14 172	13 195	13 798	14 374	14 901	15 641	15 603	16 146	15 510	24 361	24 175	17 715	
Aralık	Toplam-Total	32 769	32 217	33 223	32 131	35 700	32 635	35 593	38 046	36 330	38 634	38 161	61 175	52 299	43 334	
December	Erkek-Male	17 975	17 455	18 202	17 667	19 550	17 813	19 463	20 724	19 716	20 876	20 846	34 985	28 487	23 288	
	Kadın-Female	14 794	14 762	15 021	14 464	16 150	14 822	16 130	17 322	16 614	17 758	17 315	26 190	23 812	20 046	
Kaynak: Nüfus ve Vatandaşlık İşleri Genel Müdürlüğü																
Sağlık Bakanlığı																
Source: General Directorate of Civil Registration and Citizenship Affairs																
Ministry of Health																
(1) Ölümleri verileri güncel idari kayıtlarla revize edilmiştir.																
(1) Death data were revised with updated administrative records.																

Figure 1

To visualize an SVG graph a HTML file was created. Then a view box with 1280 x 720 (720p HD resolution with 16:9 aspect ratio) pixels was added. However, the graph has only 1200 pixels width and 600 pixels height inside the view box. Because of that, two perpendicular lines were drawn into view box to visualize the x and y axis of the graph. The x axis starts from the (80,640) point and ends at the (1280, 640) point. The y axis starts from the (80, 40) point and ends at the (80, 640) point. For better understanding see **Figure 2**.

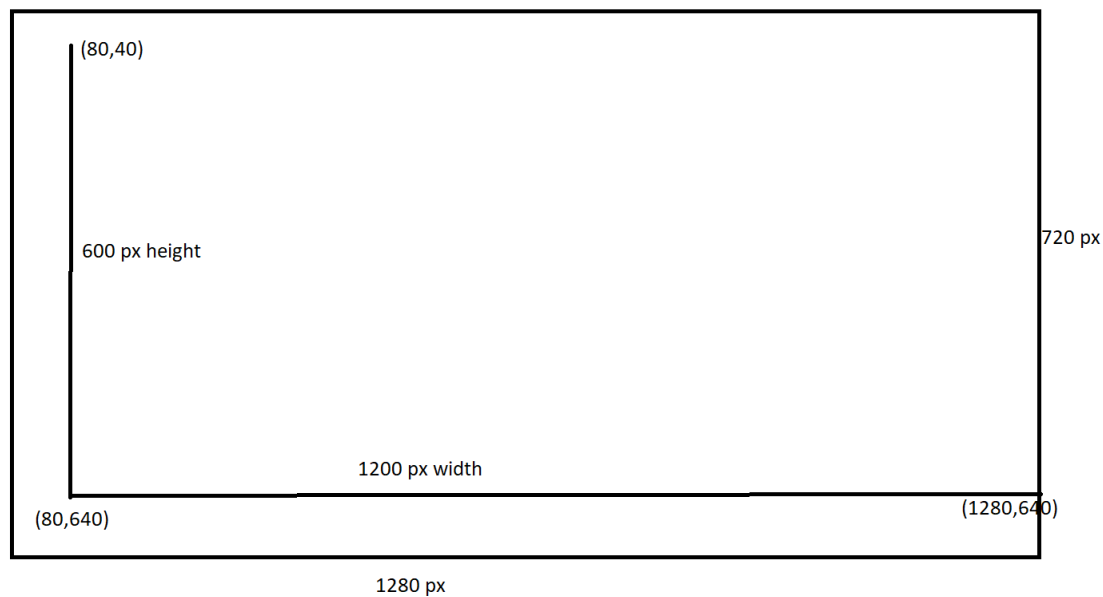


Figure 2

The important data from the dataset has been stored in a javascript array. There are 3 arrays from the dataset. These are the total deaths, male deaths and female deaths for each month in 2022. There are 12 months (January to December) in the graph therefore at each 100 pixels on x axis represents a month and in each month there are 3 rectangles to symbolize male (blue), female (red) and total (black) deaths. Each rectangle has 20 pixel width and their heights have been determined by the data. For y axis we have 600 pixel height and each pixel represents 100 deaths. Therefore maximum of 60000 deaths can be represented by the graph. The data from the dataset is divided by 100 and given into rectangles as their heights. Thus heights of the rectangles depend on the death count from the data.

A javascript code was used to automate to draw process in the HTML file. A for loop iterates 12 times to draw 3 rectangles; write month names from January to December in each iteration. Also, y axis has been divided into 7 segments with 7 iterations and each segment indicates the 10000 deaths from 0 to 60000 (60000 included). However, the legends for the graph were coded manually (not by script) at the beginning of the HTML code. There are 3 elements in the legend: total deaths which are represented by black, male deaths which are represented by blue and female deaths are represented by red. To draw rectangle and and lines basic svg functions from www.w3.org have been used.