DAPPS

Demographic Analysis & Population Projection System

Fardous Sabnur & Jun Huang

Training and Statistical Development Branch (TSDB)

Our Team

Branch

Training and Statistical Development Branch (TSDB)

Supervisor

Sean Fennell & Nobuko Mizoguchi

Product Software

Demographic Analysis and Population Projection Software (DAPPS)

Coding it Forward Fellows

Fardous Sabnur (data scientist)

Masters student at the City University of New York (Hunter College)

Jun Huang (software engineer)

Recent graduate at the Macaulay Honors College (Baruch Campus)

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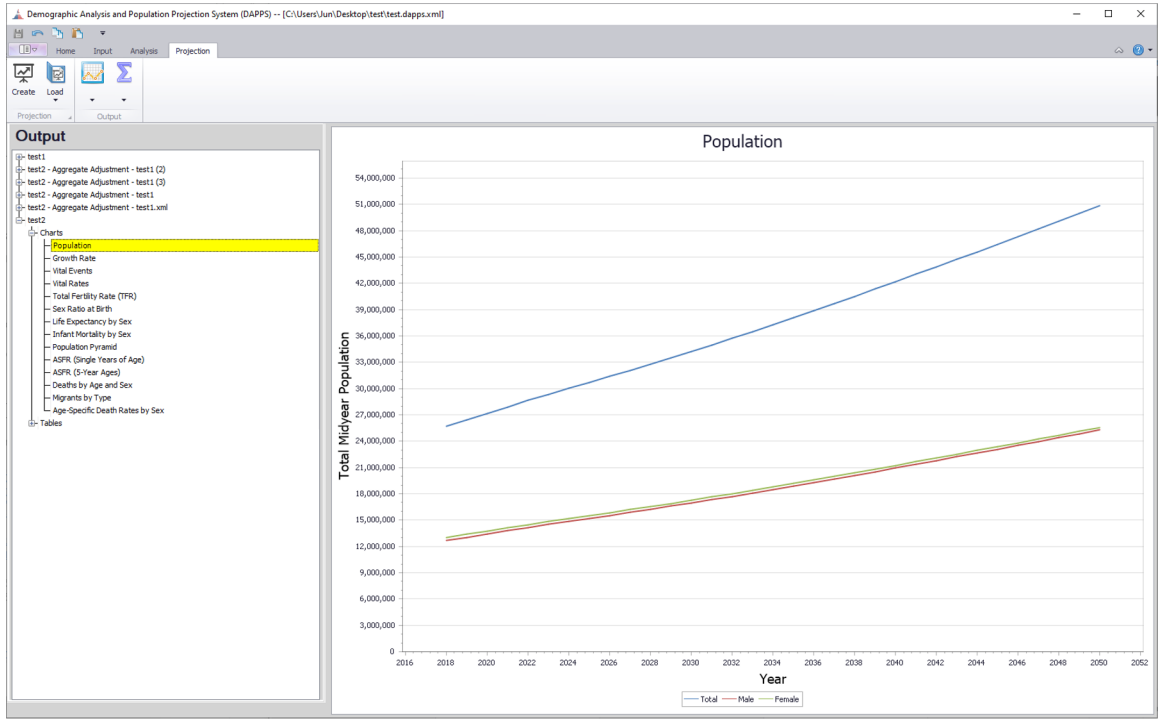
Demographic Analysis and Population Projection Software (DAPPS)



DAPPS is a Windows .NET application that analyzes population data and create **population projections**

20+ analysis methods

Integrated Data Entry

Secure local application

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Our Problem

Current DAPPS

Built on legacy technology

Only compatible with Windows

Clunky user interface

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Our Solution

Electron.js

+

R Language

- ✅ MacOS & Windows Compatible
- ✅ Modern User Interface
- ✅ Compatible with popular APIs & modules (like Chart.js, file system, excel parser)
- ✅ Integrates R analysis methods

Solution: rebuild DAPPS' features and user interface using Electron.js and R.

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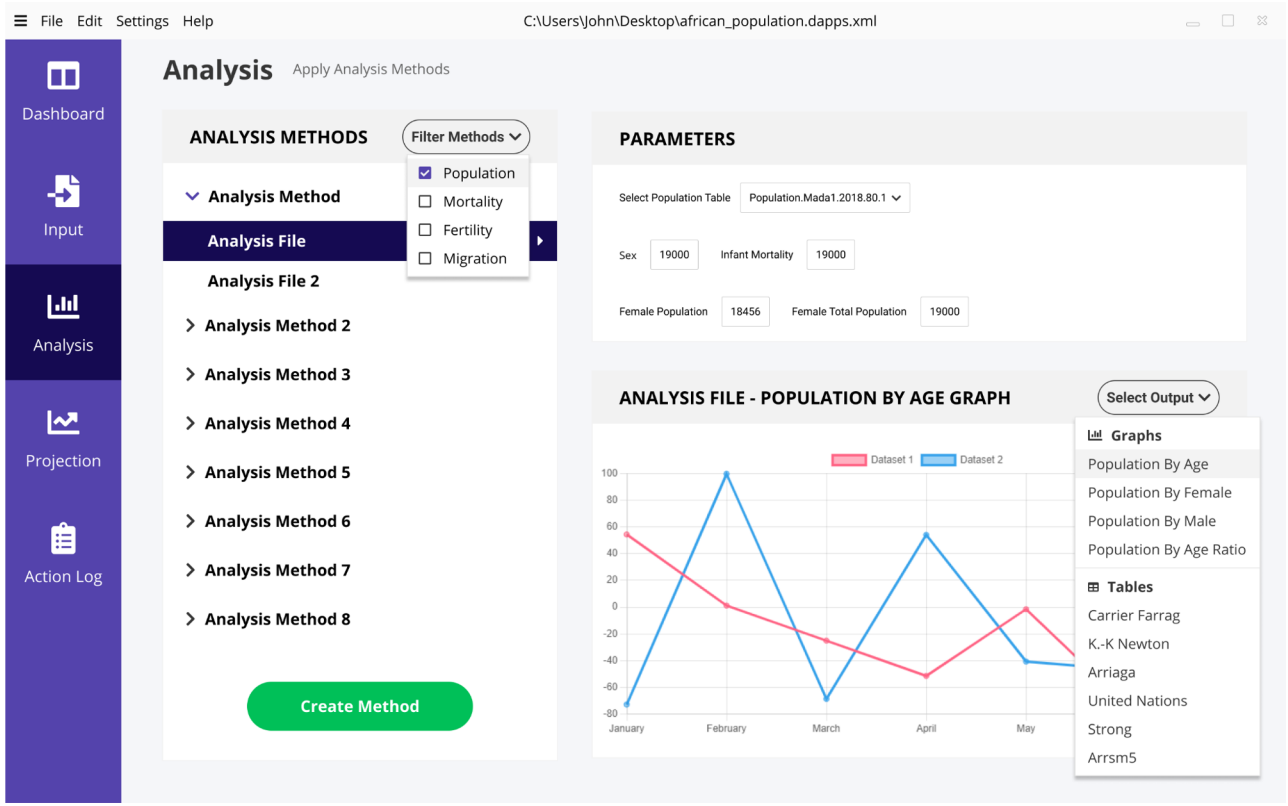
Our Work



Updated User Interface

C. Adjusted Abridged Life Table: Female

Age, x	Width, n	nMx	nax	nqx	lx	ndx	nLx	5Px	Tx	ex
0	1	0.07205	0.255	0.06838	100,000	6,838	94,907	0.91852	5,974,497	59.74
1	4	0.00880	1.413	0.03442	93,162	3,206	364,353	0.97462	5,879,590	63.11
5	5	0.00194	2.500	0.00968	89,956	870	447,603	0.99138	5,515,237	61.31
10	5	0.00152	2.500	0.00756	89,085	674	443,743	0.99061	5,067,634	56.89
15	5	0.00226	2.500	0.01122	88,412	992	439,578	0.98692	4,623,891	52.30
20	5	0.00301	2.500	0.01496	87,420	1,308	433,829	0.98384	4,184,313	47.86
25	5	0.00351	2.500	0.01738	86,112	1,497	426,818	0.98128	3,750,484	43.55
30	5	0.00406	2.500	0.02009	84,615	1,700	418,826	0.97814	3,323,666	39.28
35	5	0.00479	2.500	0.02367	82,915	1,963	409,669	0.97386	2,904,840	35.03
40	5	0.00581	2.500	0.02866	80,952	2,320	398,962	0.96735	2,495,172	30.82
45	5	0.00749	2.500	0.03677	78,632	2,891	385,935	0.95623	2,096,210	26.66
50	5	0.01048	2.500	0.05105	75,741	3,866	369,041	0.93916	1,710,276	22.58
55	5	0.01476	2.500	0.07116	71,875	5,115	346,589	0.90115	1,341,234	18.66
60	5	0.02750	2.500	0.12865	66,760	8,589	312,329	0.83896	994,646	14.90
65	5	0.04400	2.500	0.19820	58,171	11,529	262,033	0.75504	682,316	11.73
70	5	0.07150	2.500	0.30329	46,642	14,146	197,845	0.64412	420,284	9.01
75	5	0.11000	2.500	0.43137	32,496	14,018	127,435	0.51327	222,439	6.85
80	5	0.16500	2.500	0.58407	18,478	10,793	65,409	0.36604	95,004	5.14
85	5	0.24200	2.500	0.75389	7,686	5,794	23,943	0.21644	29,595	3.85
90	5	0.33000	2.500	0.90411	1,891	1,710	5,182	0.08917	5,652	2.99
95	5	0.38500	2.500	0.98089	181	178	462	0.01676	470	2.59
100	+	0.44000	2.273	1.00000	3	3	8		8	2.27

nMx = Age-specific central death rate.
nax = Average person-years lived by those who die between ages x and x+n.
nqx = Probability of dying between exact ages x and x+n (age-specific mortality rate).
lx = Number of survivors at age x.
ndx = Number of deaths occurring between ages x and x+n.
nLx = Number of person-years lived between ages x and x+n.
5Px = Survival ratio for persons aged x to x+5 surviving 5 years to ages x+5 to x+10 = 5Lx+5/5Lx (first 5Px = 5L0/5l0, second 5Px= 5L5/5L0, last 5Px = Tx+5/Tx).
Tx = Number of person-years lived after age x.
ex = Life expectancy at age x.
Note:
Separation factors: West

R Analysis Output

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Conclusion

Why is DAPPS important?

DAPPS helps countries and organizations across the world use population projections to create informed policies.

Next Steps

- Migrate features to the new **Electron DAPPS**
- Continue building out **R** analysis methods

Future of DAPPS

In the future, we hope to explore transforming DAPPS into a **web hosted application** that makes population data & projections accessible to users across the world.

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