

# An Exploration of Washington D.C for Young Adults

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Coursera Capstone

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## Introduction

Large cities are often a popular relocation destination for young adults. The move to a new city however can be difficult when one is not familiar with the area. Washington D.C is a not only the capital of the United States but has also been ranked one of the best cities for Black women<sup>1</sup>.

As a young black woman, myself I have a strong interest in Washington D.C and though I have spent some time there I am curious about the different neighborhoods. Considering that there are over 130 official named neighborhoods<sup>2</sup> it's safe to say that spending time investigating each one on foot would not be very efficient. Instead, this project is meant to fast-track the process of looking at the city by dividing it up based on venues into three main groups: *Residential*, *Tourist*, and *Industrial*. Clusters produced in this method will be compared as to clusters produced when running K-Nearest Neighbor and potentially other algorithms.

## Data

Neighborhood Names and location data is provided from the OpenData DC dataset<sup>3</sup>. Each neighborhood will be assigned a label either *Residential*, *Tourist*, or *Industrial* based on the majority type of venue that it contains. See Table A.1 in Appendix for list of all Neighborhood Names.

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<sup>1</sup> <https://www.essence.com/news/best-metro-areas-black-women/> && <https://www.bloomberg.com/news/articles/2020-01-09/the-best-and-worst-cities-for-black-women> && <https://travelnoire.com/best-worst-cities-black-women-relocate>

<sup>2</sup> <https://opendata.dc.gov/datasets/neighborhood-labels>

<sup>3</sup> <https://opendata.dc.gov/datasets/neighborhood-labels>

Venue data is pulled from the Foursquare API<sup>4</sup>. Over 302 unique categories were pulled using this API. The top ten overall venue types, a subset of the categories, is provided in Table 1. For this investigation many of the categories such as “BBQ Joint”, “Diner”, “Korean Restaurant” and “Salad Place” can be combined into label *Restaurant*. The new labels and their contents can be found in Tables A.2 – A.5.

## Appendix

**Table A.1 Washington D.C Neighborhoods**

Neighborhood Name	Longitude	Latitude
16th Street Heights	-77.033559	38.9503145
Adams Morgan	-77.042391	38.9204722
American University Park	-77.09025	38.9476116
Arboretum	-76.97249	38.9148598
Barnaby Woods	-77.060174	38.9754334
Barry Farm	-76.997281	38.8592553
Bellevue	-77.009271	38.8269524
Benning	-76.948884	38.8918849
Benning Ridge	-76.938203	38.8811615
Bloomingdale	-77.011159	38.9182264
Brentwood	-76.987035	38.9189773
Brightwood	-77.026874	38.9663793
Brightwood Park	-77.024871	38.9557476
Brookland	-76.984414	38.9314044
Burleith/Hillandale	-77.074566	38.915003
Burrville	-76.921802	38.900243
Buzzard Point	-77.011425	38.8683001
Capitol Hill	-76.998477	38.8836208
Capitol View	-76.927086	38.8899785
Cardozo/Shaw	-77.02755	38.9171683
Carver	-76.97785	38.9024653
Cathedral Heights	-77.07986	38.9342724
Central NE	-76.942277	38.8970345
Chevy Chase	-77.066478	38.9631465
Chinatown	-77.020135	38.8991512
Cleveland Park	-77.064402	38.9360979

Colonial Village	-77.041094	38.9867896
Columbia Heights	-77.030586	38.9280083
Congress Heights	-76.99795	38.8410773
Connecticut Avenue/K Street	-77.041134	38.9029518
Crestwood	-77.041097	38.9433271
Deanwood	-76.932801	38.9041073
Douglass	-76.979645	38.8475715
Downtown	-77.029175	38.9005261
Downtown East	-77.014234	38.8954282
Dupont Circle	-77.040984	38.9121281
Dupont Park	-76.962818	38.8726304
Eastland Gardens	-76.94307	38.9053294
Eckington	-77.000425	38.9152018
Edgewood	-77.000739	38.9251989
Fairfax Village	-76.95163	38.8634527
Fairlawn	-76.977452	38.8691585
Foggy Bottom	-77.052436	38.8990217
Forest Hills	-77.058462	38.9468927
Fort Davis Park	-76.94467	38.8689012
Fort Dupont	-76.950685	38.8860167
Fort Lincoln	-76.954749	38.9236098
Fort McNair	-77.016438	38.8669433
Fort Stanton	-76.980348	38.8556577
Fort Totten	-77.008128	38.9494299
Foxhall Crescents	-77.092767	38.9204865
Foxhall Village	-77.084407	38.9132471
Friendship Heights	-77.083854	38.9569068
Garfield Heights	-76.972213	38.8540851
Gateway	-76.963846	38.9197568
George Washington University	-77.047928	38.8996277
Georgetown	-77.064796	38.9095558
Georgetown Reservoir	-77.090677	38.9096371
Glover Park	-77.075738	38.9215308
Grant Park	-76.920638	38.8927065
Greenway	-76.960181	38.8847875
Hawthorne	-77.055934	38.9808826
Hill East	-76.979951	38.88333
Hillcrest	-76.960688	38.8617945
Hillsdale	-76.990561	38.8584234

Historic Anacostia	-76.984678	38.8631857
Howard University	-77.01961	38.9223548
Ivy City	-76.991627	38.9103895
Kalorama Heights	-77.051195	38.9156604
Kenilworth	-76.938586	38.9106788
Kingman Park	-76.978437	38.8948866
Knox Hill/Buena Vista	-76.96766	38.8536881
Lamond Riggs	-77.006445	38.9650697
Langdon	-76.974689	38.924017
Langston	-76.972367	38.9013363
Lanier Heights	-77.042694	38.9252488
Le Droit Park	-77.017605	38.9168316
Lincoln Heights	-76.931097	38.8958052
Lincoln Park	-76.98971	38.8872107
Logan Circle/Shaw	-77.02534	38.9098163
Manor Park	-77.012657	38.9620616
Marshall Heights	-76.929122	38.8843719
Mass. Ave. Heights	-77.070075	38.9253988
Mayfair	-76.951295	38.9011156
McLean Gardens	-77.075296	38.9361512
Michigan Park	-76.983772	38.9469341
Monumental Core	-77.037334	38.8844631
Mount Pleasant	-77.040656	38.9317415
Mount Vernon Square	-77.023313	38.9043398
Mount Vernon Triangle	-77.016879	38.902417
Navy Yard	-76.998462	38.8742684
Naylor Gardens	-76.963046	38.8567244
NE Boundary	-76.917389	38.8954508
Near Northeast	-76.999734	38.9023748
Near Southeast	-77.000627	38.8783845
North Capitol Street	-77.011275	38.9025322
North Cleveland Park	-77.071774	38.9478787
North Michigan Park	-76.993666	38.9456442
North Portal Estates	-77.040877	38.991765
Palisades	-77.10352	38.9298077
Park View	-77.021444	38.9346043
Penn Branch	-76.953424	38.8695602
Penn Quarter	-77.022181	38.8953704
Petworth	-77.024017	38.9430391

Pleasant Hill	-77.004804	38.9410792
Pleasant Plains	-77.023101	38.929473
Queens Chapel	-76.996591	38.95607
Randle Highlands	-76.965804	38.8693357
River Terrace	-76.957681	38.8937045
Shepherd Park	-77.032126	38.9829801
Shipley	-76.972902	38.8468601
Skyland	-76.971703	38.860267
South Central	-76.965043	38.9239855
Southwest Employment Area	-77.020317	38.8850166
Southwest/Waterfront	-77.016903	38.8779084
Spring Valley	-77.096724	38.9393114
Stanton Park	-76.994242	38.8948978
Stronghold	-77.007767	38.9257756
Takoma	-77.021558	38.9764616
Tenleytown	-77.080163	38.9471274
Trinidad	-76.982737	38.9084625
Truxton Circle	-77.012394	38.9096673
Twining	-76.960847	38.8755879
University Heights	-76.995762	38.9382488
Van Ness	-77.066106	38.9433906
Washington Highlands	-76.995636	38.8302374
Wesley Heights	-77.088325	38.9299808
West End	-77.051882	38.9055503
Woodland	-76.973926	38.8565542
Woodland-Normanstone	-77.060753	38.92285
Woodley Park	-77.057483	38.9272653
Woodridge	-76.96864	38.934021

Neighborhood Data obtained from Open Data DC:

(<https://opendata.dc.gov/datasets/neighborhood-labels/data?geometry=-77.596%2C38.816%2C-76.425%2C39.003>) 01/17/2021

**Table A.2 Residential Codes**

<b>Grocery</b>	<b>Health/ Wellness</b>	<b>Home</b>	<b>Athletics &amp; Sports</b>
Bakery	Chiropractor	Dog Run	Athletics & Sports
Bagel Shop	Health & Beauty Service	Dry Cleaner	Baseball Field
Chocolate Shop	Hospital	Home Service	Basketball Court

Convenience Store	Massage Studio	Laundromat	Basketball Stadium
Cupcake Shop	Nail Salon	Locksmith	Boxing Gym
Deli / Bodega	Spa	Moving Target	Cycle Studio
Dessert Shop	Salon / Barbershop	Other Repair Shop	Dance Studio
Donut Shop		Pet Service	Field
Drugstore		Shoe Repair	Golf Course
Farmers Market		Storage Facility	Gym
Food		Tailor Shop	Gym / Fitness Center
Food & Drink Shop		Residential Building (Apartment / Condo)	Gym Pool
Gourmet Shop			Gymnastics Gym
Grocery Store			Harbor / Marina
Liquor Store			Heliport
Market			Lake
Organic Grocery			Martial Arts School
Pharmacy			Pilates Studio
Smoothie Shop			Playground
Snack Place			Skating Rink
Supermarket			Soccer Field
Supplement Shop			Soccer Stadium
Wine Shop			Sports Club
Beer Store			State / Provincial Park
			Volleyball Court
			Yoga Studio
			Recreation Center
			Track

Venues with these labels are assigned as "residential"

**Table A.3 Residential & Tourism Codes**

Shopping	Bar	Restaurant	Culture	Banking	Entertainment	Transportation
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Accessories Store	Bar	Afghan Restaurant	Art Gallery	ATM	Hookah Bar	Bike Rental / Bike Share
Antique Shop	Beer Bar	American Restaurant	Art Museum	Bank	Lounge	Boat or Ferry
Arts & Crafts Store	Beer Garden	Arepa Restaurant	Botanical Garden	Check Cashing Service	Nightclub	Border Crossing
Automotive Shop	Brewery	Asian Restaurant	Comedy Club	Credit Union	Nightlife Spot	Bridge
Big Box Store	Cocktail Bar	BBQ Joint	Escape Room		Roof Deck	Bus Line
Bookstore	Dive Bar	Belgian Restaurant	Exhibit		Event Space	Bus Station
Boutique	Gastropub	Bistro	Fountain			Bus Stop
Camera Store	Gay Bar	Brazilian Restaurant	Garden			Gas Station
Christmas Market	Irish Pub	Breakfast Spot	General Entertainment			Metro Station
Clothing Store	Karaoke Bar	Burger Joint	Historic Site			Rental Car Location
Comic Shop	Pub	Burrito Place	History Museum			Trail
Cosmetics Shop	Speakeasy	Café	Indie Movie Theater			Train Station
Department Store	Sports Bar	Cajun / Creole Restaurant	Memorial Site			Tunnel
Discount Store	Thai Restaurant	Cantonese Restaurant	Monument / Landmark			
Electronics Store	Tiki Bar	Caribbean Restaurant	Movie Theater			
Flea Market	Whisky Bar	Cheese Shop	Museum			
Flower Shop	Wine Bar	Chinese Restaurant	Music Venue			
Furniture / Home Store		Coffee Shop	Opera House			
Gift Shop		Comfort Food Restaurant	Outdoor Sculpture			

Hardware Store		Cuban Restaurant	Park			
Herbs & Spices Store		Diner	Pedestrian Plaza			
Jewelry Store		Dumpling Restaurant	Performing Arts Venue			
Kids Store		Eastern European Restaurant	Planetarium			
Kitchen Supply Store		Empanada Restaurant	Plaza			
Leather Goods Store		Ethiopian Restaurant	Public Art			
Lingerie Store		Falafel Restaurant	Rock Club			
Mattress Store		Fast Food Restaurant	Science Museum			
Men's Store		Filipino Restaurant	Sculpture Garden			
Miscellaneous Shop		Fish & Chips Shop	Synagogue			
Mobile Phone Shop		Food Court	Tennis Court			
Music Store		Food Service	Theater			
Optical Shop		Food Truck	Winery			
Paper / Office Supplies Store		French Restaurant	Zoo Exhibit			
Pet Store		Fried Chicken Joint	Scenic Lookout			
Photography Lab		Frozen Yogurt Shop				
Record Shop		German Restaurant				
Shipping Store		Gluten-free Restaurant				
Shoe Store		Greek Restaurant				



Shop & Service		Hot Dog Joint				
Shopping Mall		Ice Cream Shop				
Shopping Plaza		Indian Restaurant				
Smoke Shop		Israeli Restaurant				
Souvenir Shop		Italian Restaurant				
Sporting Goods Shop		Japanese Restaurant				
Thrift / Vintage Store		Juice Bar				
Toy / Game Store		Korean Restaurant				
Video Store		Latin American Restaurant				
Warehouse Store		Mediterranean Restaurant				
Women's Store		Mexican Restaurant				
		Middle Eastern Restaurant				
		New American Restaurant				
		Noodle House				
		Peruvian Restaurant				
		Pizza Place				
		Poke Place				
		Portuguese Restaurant				
		Puerto Rican Restaurant				
		Ramen Restaurant				

		Restaurant				
		Salad Place				
		Salvadoran Restaurant				
		Sandwich Place				
		Scandinavian Restaurant				
		Seafood Restaurant				
		South American Restaurant				
		Southern / Soul Food Restaurant				
		Spanish Restaurant				
		Steakhouse				
		Street Food Gathering				
		Sushi Restaurant				
		Taco Place				
		Tapas Restaurant				
		Tea Room				
		Tex-Mex Restaurant				
		Turkish Restaurant				
		Vegetarian / Vegan Restaurant				
		Vietnamese Restaurant				
		Wings Joint				
		Xinjiang Restaurant				

Venues with these labels are assigned both a residential and a tourism label.

**Table A.4 Tourism Codes**

<b>Lodging</b>	<b>Tourism</b>
Bed & Breakfast	Tour Provider
Hostel	Tourist Information Center
Hotel	
Hotel Bar	
Hotel Pool	

Venues with these labels are assigned a tourism label.

**Table A.5 Industrial Codes**

<b>Business</b>	<b>Infrastructure</b>	<b>College</b>
Building	Intersection	College Administrative Building
Business Service	Reservoir	College Basketball Court
Construction & Landscaping	River	College Bookstore
Government Building	Road	College Library
Insurance Office		College Quad
Lawyer		General College & University
Light Rail Station		
Office		
Post Office		

Venues with these labels are assigned an industrial code.