Demographic characteristics of consumer buying behavior effects of environmentally friendly products and an application in Gaziantep

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Key Words
Demographic Characteristics, Environmentally-Friendly Product, Purchasing Behaviour.

Abstract
This study examined the buying behavior of consumers in general eco-friendly product. For this purpose, the relationship between consumers' purchase behavior and environmental interests, environmental concern, the level of environmental awareness were analyzed using the survey technique on 818 consumers on which from at the five biggest shopping center in Gaziantep. As a result of the analysis, significant relationships were found between demographic characteristics (age, sex, marital status, education level) and purchasing behavior of environmentally friendly products. According to data which surveyed, if consumers' over the age of 35, married and having children of consumers, higher level of education of consumers and female consumers buying more environmentally friendly (eco-friendly) products were shown in their purchase behavior. Future research can extend to demographic characteristics in other national/international markets addition with other factors.

1. Introduction
Beginning from the 1960s, environmental act has continued to be of increasing importance to this day. Nowadays, environmental issues are one of the matters with utmost importance that concerns people (Minton and Rose, 1997:37). People can minimize the harm inflicted on environment with their purchase decisions. Consumers need to become conscious about environment, and organizations need to increment their environmental sensitivity. As it is impossible to ignore consumers' demand and environmental pressure to draw attention to environmental issues and preserve the environment, thus organizations develop green products and business models for their market (Kauffman et al., 2012:50; Chen, 2010: 308). While markets are at their greenest and most responsible efforts, consumers appear to pay more to green products (Chen, 2010: 316). At this point, generated awareness for environmental friendly products offer various opportunities for organizations (Ishaswini and Datta, 2011: 125).

In literature, number of variables on green products and their marketing are used to research geographic, cultural, personal and socio-demographic of different consumer segments (Diamantopoulos et al., 2003: 465). Most of the researches are resulted that demographics have faint effect. However it can be observed that many organizations still concentrate on socio-demographics for their green marketing efforts (Diamantopoulos et al., 2003: 465, Samdahl and Robertson, 1989; Scott and Willits, 1994; Stern et al., 1995). Whether for green products/services or non-green products/services, segments are defined and reached by focusing on demographic features, therefore demographic features are accepted to be crucial (McDonald and Dunbar, 2012:11-12). Consequently when a market develops adequate and sustainable products, factors that affect consumers' decision process are needed to analyzed (Bahram and Arezeo, 2012:171-183). Demographic features are important factors that have an impact on this process.

In this study; relation between age, gender, marital status, education level, income level and number of children from consumers' demographic features and purchasing behavior of environment friendly products are analyzed.

2. Factors Affecting Purchasing Behavior of Green Products
Since April 22nd Earth Day, for last thirty years, public's environmental consciousness has been gradually increased (Kaufman et al., 2012:50). For the purpose of leading the industry while being affected by growing environmental consciousness of the world, organizations need to improve environment friendly product/manufacturing/technology and marketing strategies, also in order to increase their sales volume, analyze customers purchasing behavior, and determine the factors that are crucial in purchasing

decision (Aytekin and Kaynak, 2005:619-620; Ayyıldız and Genç, 508:2003, Dünya Gazetesi, 2012; İntegreen, 2014)).

When green marketing literature works are considered, demographic variables usually with taste and choices, are considered as deciding factor to shape the relation with environment friendly consumption (Harris, 2000:15; Ay and Ecevit, 2005:243). Accepting demographic features are crucial to assess the relation of environmental sensitivity of consumer attributes and environment friendly consumption behavior, individuals belong to same demographic group are assumed to have similar taste and choices (Harris, 2000:15). Consumers' individualistic attributes such as age, gender, marital status, income level, education level, number of children are play deciding role to which products to buy, which models and styles to seek (Arslan, 2003:95). Moreover organizations need to analyze their customers purchasing behavior and determine the factors that are effective at purchase decision process to increase their sales along with their profits (Aytekin and Büyükahraz, 2012-13).

There are number of factors in literature that are analyzed to assess customers' purchase behavior. From demographic variables, age; by Van Liere and Dunlap (1981: 651–676), Roberts and Bacon (1997:79–89), Samdahl and Robertson (1989:57–81), Zimmer et al. (1994:63–74), gender; by Doughus and Rice (1979), Straughan and Roberts (1999:558–575), Zimmer et al. (1994:63–74)), Yücel and colleagues (1994:121–136), Yılmaz and Arslan (2011:1–10), education level; by Babekoğlu (2000:1–25), Nakıboğlu (2007:423–438), Yücel et al. (2008:363–382), Oğuz et al. (2011:34–39), marital status; by Penpece (2006:29–33), Nakıboğlu (2007:423–438), Odabaşı and Barış (2003:29–76), income level; by Panni (2006), Hoch et al. (1995:17-29), Dunlap and Scarce (1991:656), Büyükahraz (2012:72), Diamantopoulos vd. (2003:472) number of children; by Brooker (1976:107-112) and Grunert(1993:428-433) (Aytekin and Büyükahraz, 2012:67-68; Diamantopoulos, 2003:465-480).

In these studies conducted, most utilized demographic attributes are; age, gender, education level, marital status and income level. Likewise, in this study, relation between, as it can be observed at Figure 1, literature's most used demographic attributes (gender, education level, marital status, income level) as well as less utilized factor such as number of children and purchasing behavior of environment friendly product is analyzed.
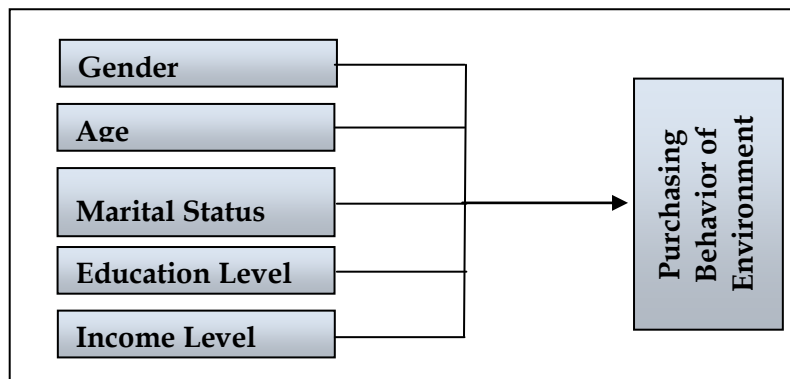

Figure1. Theoretical Model of Study

2.1. Gender

Every study on environment friendly consumer behavior, a significant relation between gender and environment concerns are evident. Based on the studies, women exhibit more environment friendly behaviors (recycling etc…) (Diamantopoulos et al., 2003:470-471). Ruiz, Arcas and Cuestas (2001: 256) claim that gender has crucial role in environmental consumption based on their study. Doughus and Rice (1979:223–224), conducted a research on elementary school students, resulted that females have more tendency to be concerned about environment. (Büyükahraz, 2012:67). While males are more knowledgeable than woman (Diamantopoulos et al., 2003:470); females are more sensitive about environment (Davidson and Freudenburg, 1996). In this study, relation between gender and purchasing behavior of environment friendly products is examined. Therefore second hypothesis of this study;

H₁: There is a positive correlation between consumers' gender and purchasing behavior of environment friendly products.

2.2. Age

Age variable is accepted as strong determinant of purchasing behavior of consumer. Different age groups have different needs, products and services that they take interest on offers certain characteristics. While age factor affects individual's purchasing behavior, it also affects manner of utilization for purchased products and services (Penpece, 2006 :29). For example a research conducted by Van Liere and Dunlap (1981:651–676), young people are more open to discuss environmental issues. Mohai and Twight (1987:798–815) state that age has direct effect on purchasing environmental friendly product. However Diamantopoulos et al. (2003:471)'s study identified only 2 research state that youth has more environmental knowledge by comparing results of 33 different research from literature (Arcury et al., 1987; Grunert ve Kristensen, 1992). In this study, presence of relation between age and purchasing behavior of environment friendly products are being examined. Therefore first hypothesis of this study;

H₃: There is a positive correlation between consumers' age and purchasing behavior of environment friendly products.

2.3.Marital Status

Although marital status of consumers is expected to affect purchasing behavior, on the contrary in most of the research, no relation between marital status and purchasing behavior of environment friendly products are found (Diamantopoulos, 2003:471).In this study, relation between marital status and purchasing behavior of environment friendly products will be tested.

H₃: There is a positive correlation between consumers' marital status and purchasing behavior of environment friendly products.

2.4. Education Level

Individuals with higher education, tend to have diversified needs and wants, as their needs and wants start to evolve (Sürücü, 1998:19). In all demographic variables, expanding knowledge caused by increase at education level leads sprouting concern for the environment (Shen and Saijo, 2008:293–260). Berkowitz and Lutterman (1968); Hustad and Pessemier (1973) consider education level as an important factor for environmentalist consumption. Consumers with higher education are more motivated to purchase green products and practice more purchasing behavior at their environment friendly consumer behaviors (Kheiry and Nakhaei, 2012:176). Although some studies state existence of positive relation between education level and environmental sensitivity (Roberts, 1996:558; Roper, 1992:260; Van Liere and Dunlap, 1981:651-676; Zimmer et al., 1994:63-74), other studies cannot identify a relation between two variables (Awad, 2011:55-73).In this study, relation between education level and purchasing behavior of environment friendly products is examined.

H₄: There is a positive correlation between consumers' education level and purchasing behavior of environment friendly products.

2.5. Income Level

Product and service fees as well as consumers social and ethical behaviors are affected considerably by income level (Panni, 2006). Price sensitivity tend to drop as consumers income and education level rises (Hoch et al., 1995:17-29).It is accepted that income has positive relation with environmental behavior. Dunlap and Scarce (1991:656), stated that consumers agree to spend more for environment friendly products (Büyükahraz, 2012:72).Half of the research conducted shows that social class seem to have an affect on environmental attitude and behavior (Diamantopoulos vd., 2003: 472).In this study, relation between income level and purchasing behavior of environment friendly products is examined.

H₅: There is a positive correlation between consumers' income level and purchasing behavior of environment friendly products.

2.6. Number of Children

In literature, presence of a positive relation between number of children consumers have and environmental sensitivity is supported. Brooker stated that having a child affects environmentalist behaviors (Brooker, 1976:111). Grunert claims that as number of children increases in families, people tend to acquire more environmental knowledge and act environmentalist (Grunert, 1993:428-433). Also Diamantopoulos et al. found a positive relation between number of children and environmental consciousness as well (Diamantopoulos et al., 2003: 472).

H6: There is a positive correlation between consumers' number of children and purchasing behavior of environment friendly products.

3. A Practice On Consumer Purchasing Behavior of Eco Friendly Products in Gaziantep

This study was conducted in January and February of 2013. The main body of this work in Gaziantep comprise all consumers from shopping malls. The subject of the study is limited by the scope of the research. As the data collection method has been used 5 point Likert-type questionnaire. Used in the study questionnaire used to measure variables are inspired from the work Yagiz et al. (2010), Ayyıldız and Young (2008), Gallup et al. (1993), Minton and Rose (1997). The research sample was randomly selected using the technique of face to face interviews. In this context, obtained from the 1000 survey showed 818 ones appropriate to analysis. The statistical program SPSS for Windows was used for variables to measure.

3.1. Research Findings

Surveys in five large shopping center in Gaziantep, using the technique of analysis of the data obtained, the following findings were reached. Demographic characteristics were outlined in Table 1 are given the frequency.

Table 1. Demographic Characteristics of Participants

Age	Frequency	Percent	Cumulative Percent
<18	6	,8	,7
19–25	19	2,3	3,1
26–35	69	8,4	11,5
36–50	208	25,4	37,0
50+	515	63,1	100,0
Toplam	817	100,0	
Gender	**Frequency**	**Percent**	**Cumulative Percent**
Male	468	57,2	57,2
Female	350	42,8	100,0
Total	468	57,2	57,2
Educational Level	**Frequency**	**Percent**	**Cumulative Percent**
Primary Education	15	1,8	1,8
High School	21	2,6	4,4
Associate Degree	76	9,3	13,7
Graduate	208	25,4	39,1
Upper-Graduate	498	60,9	100,0
Total	818	100	
Marital Status	**Frequency**	**Percent**	**Cumulative Percent**
Single	305	37,4	37,4
Married (no children)	66	8,1	45,5
Married (one child)	88	10,8	56,3
Married (with two children	223	27,3	83,6
Married (three children)	79	9,7	93,3
Married (4 + children)	55	6,7	100,0
Total	816	100,0	
Income Level	**Frequency**	**Percent**	**Cumulative Percent**
0-1500	172	21	21
1501-3000	405	50	71
3001-4500	167	20	91
4501-6000	56	7	98
6001-+	18	2	100
Total	818	100	

95% of consumers who participated in the survey , consumers are over the age of 25 . 57% of respondents were male, 43% are women seen. Accordingly, men constitute the majority of the participants.

Surveyed consumers 60.9% of the graduate, 25.4% of graduate, 9.3% of the associate degree, 2.6% of the high school was observed that while 1.8% of primary level of education, at least has been found to be high school.

37.4% of consumers surveyed single, 10.8% married and with one child, 27.3% married and has two children, married and has three children 9.7% 6.7% 8.1% married with four and more children i have found that married and childless. As can be seen here, about 63% of the respondents are married. The percentage of those who have children is 55%.

21% of consumers surveyed, 71% below TL 3000 TL 1500, under 9% over 4500 Tl is comprised of individuals with income. In this case, the vast majority of people surveyed consumers income consists of with middle level.

3.2. Factor Analysis

Factor analysis may not be appropriate for all data structures. Data, whether it is appropriate for factor analysis, KMO coefficient can be examined by analysis and Barlett Sphericity test. KMO, according to test whether the factor analysis of data, consistency of the variables that are considered (Petter et al., 2003:77). According to these criteria, the suitability of data for factor analysis, the Kaiser-Meyer-Olkin (KMO) and Barlett Sphericity test was measured by the coefficient. KMO and Barlett test results are given in the following table.

Tablo2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	,781
Approx. Chi-Square	871,380
df	6
Sig.	,000

KMO 's 0.60 higher than, Bartlett test is significant, the data show that according to the factor analysis.

Table 3. Variable Belongs to Green Product Purchase Behavior Factor and Reliability Analysis

	E.Val.	Variance%	Component	Mean	S.Dev.
I don't buy products that harm the environment.	2,421	60,534	,813	3,9056	1,066
I am willing to pay more money to buy environmentally friendly products.	1,626	15,639	,761	3,4534	1,197
Generally, if I have the opportunity to choose, I buy the least environmentally damaging products.	1,510	12,740	,728	4,2953	,925
I would be careful not to purchase non environmentally sensitive companies' product.	1,443	11,086	,806	3,9228	1,000
Cronbach's Alpha			**0,779**		

Explained Variance: 60.53% Varimax Method: Main Components Analysis,
Rotation Method : VarimaxRotation (KMO)

Used in the study related to green product purchasing behavior scale consists of 5 questions and one question related factors in the analysis were removed from the analysis due to loading. As seen in Table 3, the other 4 questions related factors has been installed as of the factor loadings were higher overall. This condition; variables we use to measure the integrity of the survey questionnaire and the variables that supply is installed correctly shows. Also related to green product purchasing behavior of alpha coefficients for the social sciences acceptable level of 0.60, which is higher (0.779) is observed.

3.4. T Test Analysis

In this study, green product purchasing behavior and the relationship between gender made to measure t-test analysis and results are given in the table below.

Table 4. Green Products Purchasing Behavior and Gender Variant for T Test

Variables	Gender	N	Mean	S. Dev.	df	T	P
Purchasing	Male	468	2,984	,9920	816	-2,788	0,00

As seen in Table 4, green product purchasing behavior of the 1% level and gender were found to be statistically significant difference. According to data within the study, women more than men shows green product purchasing behavior. Accordingly, " There is a positive correlation between consumers' gender and purchasing behavior of environment friendly products." has supported the hypothesis H_1. So, according to data under investigation; environmentally friendly products, consumer buying behavior varies according to gender. Women more than men are environmentally friendly products exhibit buying behavior.

3.5. Anova(F) Analysıs

Table 5. Related to Age Group Levene Test

Levene Statistic	df1	df2	Sig.
1,867	4	813	,114

In Table 5 ANOVA which is a prerequisite of the analysis can be done Levene Test results are given. According to this group, 10% of the variance of the variance analysis can be done ANOVA because there were no differences seen.

Table 6 Green Products Buying Behavior and Anova Analysis for Variable Age

Variables	Age	N	Mean	S. Dev.	F	P
Purchasing Behavior	<18	45	3,8000	,91639	10,092	,000
	19–25	241	3,6846	,83830		
	26–35	285	3,8956	,79075		
	36–50	188	4,0665	,75968		
	50+	59	4,2881	,68041		

According to data within the study of green product purchasing behavior of consumers by age groups vary statistically significant at 1%. So green products in different age groups of consumers purchasing behavior is different. To understand where this difference, Tukey test was performed. Participating in the study, from the consumers over the age of 18 between six and 50 + , 19-25 and 35 years and older, between age 35 and over the age of six and 50, p < 0.05 significant differences were found. Accordingly, under the age of 18 on 50 + by consumers; Between the ages of 19-25, between 26 and 50 years less than the purchase green products exhibit behavior. Over 50 + consumers under the age of 35 years and more than anyone shows green product purchasing behavior. According to this ":There is a positive correlation between consumers' age and purchasing behavior of environment friendly products. " has supported the hypothesis H_2.

Table 7. Related to Marital Status Levene Test

Levene Statistic	df1	df2	Sig.
2,465	5	810	,073

In Table 7 ANOVA which is a prerequisite of the analysis can be done Levene Test results are given. According to this group, 5% of the variance of the variance analysis can be done ANOVA because there were no differences seen.

Table 8. Green Products Buying Behavior and Anova Analysis for Variable Marital Status

Variables	Marital Status	N	Mean	S. Dev.	df	F	P
Purchasing	Unmarried	305	3.702	0.858	5	6,641	,000

Behavior	Married (no child)	66	3.916	0.830	5		
	Married (1 child)	88	3.931	0.796	5		
	Married (2 children)	223	4.073	0.699	5		
	Married (3 children)	79	4.047	0.781	5		
	Married (4+ children)	55	4.009	0.805	5		
	Totel	816	3.900	0.811			

According to data within the study of green product purchasing behavior of consumers by marital status groups vary statistically significant at 1%. So green products in different marital status groups of consumers purchasing behavior is different. To understand where this difference, Tukey test was performed. Participating in the study, from the consumers between over the marital status of married with two and three child with single vary statistically significant at 1%. , from the consumers between over the marital status of married with four children and single vary statistically significant at %10.Married consumer with more children more than anyone exhibit green product purchasing behavior. According to this "There is a positive correlation between consumers' marital status and purchasing behavior of environment friendly products. " has supported the hypothesis H_3.

Table 9. Related to Education Level Levene Test

Levene Statistic	df1	df2	Sig.
2,770	5	812	,088

In Table 9 ANOVA which is a prerequisite of the analysis can be done Levene Test results are given. According to this group, 5% of the variance of the variance analysis can be done ANOVA because there were no differences seen.

Table 10. Green Products Buying Behavior and Anova Analysis for Variable Education Level

Variables	Marital Status	N	Mean	S. Dev.	df	F	P
Purchasing Behavior	Primary Education	148	3.895	0.869	5	3,552	,003
	High School	239	3.748	0.837	5		
	Associate Degree	114	3.923	0.838	5		
	Graduate	267	3.955	0.769	5		
	Upper-Graduate	50	4.201	0.600	5		
	Total	818	3,895	0.815			

According to data within the study of green product purchasing behavior of consumers by education level groups vary statistically significant at 1%. So green products in different education level groups of consumers purchasing behavior is different. To understand where this difference, Tukey test was performed. Participating in the study, from the consumers between the education level of High School and Graduate vary statistically significant at 5%. , from the consumers between the High School and Upper-Graduate vary statistically significant at %1. More educated consumers more than anyone exhibit green product purchasing behavior. As the level of education is also increasing environmentally friendly purchasing behavior.According to this "There is a positive correlation between consumers' Education Level and purchasing behavior of environment friendly products. " has supported the hypothesis H_4.

Table 11. Related to Income Level Levene Test

Levene Statistic	df1	df2	Sig.

2,910	5	812	,118

In Table 11 ANOVA which is a prerequisite of the analysis can be done Levene Test results are given. According to this group, 5% of the variance of the variance analysis can be done ANOVA because there were no differences seen.

Table 12. Green Products Buying Behavior and Anova Analysis for Variable Income Level

Variables	Marital Status	N	Mean	S. Dev.	df	F	P
Purchasing Behavior	0-1500	172	3.890	0.862	5	3,614	,000
	1501-3000	405	3.740	0.847	5		
	3001-4500	167	3.903	0.858	5		
	4501-6000	56	3.945	0.778	5		
	6001-+	18	4.230	0.620	5		
	Total	818	3,942	0.825			

According to data within the study of green product purchasing behavior of consumers by income level groups vary statistically significant at 1%. So green products in different income level groups of consumers purchasing behavior is different. To understand where this difference, Tukey test was performed. Participating in the study, from the consumers between the income level over 6000+ Liras and other income levelsgroups vary statistically significant at 1%. Consumers that income level over 6000 Liras exhibit more environmentally friendly purchasing behavior. As the level of income level is also increasing environmentally friendly purchasing behavior. According to this "There is a positive correlation between consumers' income level and purchasing behavior of environment friendly products. " has supported the hypothesis H_5

4. Results and Suggestions

This study investigated in Gaziantep's biggest 5 shopping malls on 818 consumers.The data analysis which obtained shows below results.

63% of consumers who participated in the survey, consumers are over the age of 50, . 57% of respondents were male, 43% are women seen. Accordingly, men constitute the majority of the participants. Surveyed consumers 61% of the upper-graduate, 35% of graduate. Education level of participant of this survey is high. 37% of consumers surveyed single, 63%. and more children i have found that married and childless. As can be seen here, about 63% of the respondents are married. The percentage of those who have children is 55%. 50% of consumers surveyed have 1500- 3000 Liras and 9% have over 4500+ Liras income. This case, the vast majority of people surveyed consumers income consists of with middle level.

Analysis of data derived from 818 consumers suggest that; among demographics (gender, age, education level, marital status, income level) with purchasing behaviour of environment friendly products there are positive correlations.

The gender were found to be statistically significant difference on green product purchasing behavior and women more than men shows green product purchasing behavior. In literature,there is already proof that gender affects purchasing behaviour of environment friendly products in researches conducted by, Arcas and Cuestas (2001: 256), Doughus and Rice (1979:223–224),Diamantopoulos et al., 2003:470 .

Consumers' ages groups were found to be difference on green product purchasing behavior. If consumers age increase also green purchasing behavior increase accordingly. Elder consumers purchase more green products. In literature,there is already proof that gender affects purchasing behaviour of environment friendly products in researches conducted by Arcury et al. (1987); Grunert ve Kristensen (1992), Penpece (2006 :29).

The marital status were found to be difference on green product purchasing behavior. So green products of purchasing behavior of consumers in different marital status groups is different. Married

consumer with more children more than anyone exhibit green product purchasing behavior. In literature, there is already proof that clildren affects purchasing behaviour of environment friendly products in researches conducted by Brooker (1976:111), Grunert (1993:428-433), Diamantopoulos et al. (2003: 472).

According to data within the study of green product purchasing behavior of consumers by education level groups vary significant and green products of purchasing behavior of consumers in different education level groups of consumers is different. More educated consumers more than anyone exhibit green product purchasing behavior. As the level of education is also increasing environmentally friendly purchasing behavior. In literature, there is already proof that education level affects purchasing behaviour of environment friendly products in researches conducted by Kheiry and Nakhaei (2012:176), Roberts (1996:558); Roper (1992:260), Van Liere and Dunlap (1981:651-676), Zimmer et al. (1994:63-74).

The income level were found to be significant difference on green product purchasing. So green products in different income level groups of consumers purchasing behavior is different. Consumers that income level over 6000 Liras exhibit more environmentally friendly purchasing behavior. As the level of income level is also increasing environmentally friendly purchasing behavior. In literature, there is already proof that income level affects purchasing behaviour of environment friendly products in researches conducted by Panni (2006), Hoch et al. (1995:17-29), Dunlap and Scarce (1991:656), Büyükahraz (2012:72), Diamantopoulos vd. (2003: 472).

Whether for green products/services or non-green products/services, segments are defined and reached by focusing on demographic features, therefore demographic features are accepted to be crucial (McDonald and Dunbar, 2012: 11-12). Findings of this study also support that.

In the future social, cultural, psychological and environmental factors can be investigated by researchers.

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