• In general, in most / all domains, series of question marks appear in lengths of 2-6 at a relatively high frequency.

• The question mark series are distributed unevenly between the domains. The general picture is that domains such as hospitals, cellular communications, and wired communications use these series often, and there are domains, such as car rental and television, which rarely use these series.

• In the communication domains (both wired and cellular), there are relatively the most "??" property. In car rental, there are the least.

• The "???" property appears the most in the domain of cellular communications, and then in the domain of hospitals. This property appears the least in the domain of car rental.

• The property "????" appears most in the domain of hospitals, followed by insurance.

• The property "?????" appears most in the domain of hospitals, followed by wired communications.

• The feature "??????" appears most in the domain of hospitals, followed by wired communications. This property appears the least in the domain of car rental.

• A possible explanation for the high number of question marks in the domain of hospitals, and in the domain of wired communications: It seems that a frequency of question marks is an emotional substitute for the letter author's demand for an immediate answer. The greater the number of question marks, the more urgency to receive a response is expressed. Perhaps in these domains, the letters express more anger, and a greater demand for an immediate response. This phenomenon can indicate a higher level of violence in these letters.

**The most frequent content words in the seven categories**

**Insurance:**

Insurance, already, vehicle, service, policy, company, directly, days, insured party, number, apartment, get, simple, do, day, again, customers, years, policy, cancel, price, hour, customer, money, representative, month, need, case, good, contact, call, month, duty, want, confirmation, insurer, ask, minute, sum

**Hospitals**

Patients, surgery, home, receive, there, doctor, pay, day, note, say, again, do, time, emergency room, nurse, room, reach, doctor, hour, nose, test, need, treatment, date, number, contact, can, department, home, boy, heart, answer, receive, want, pass, blood, child.

**Vacation deals**

Hotel, flight, road, day, hour, order, date, say, company, service, there, note, contact, talk, trip, morning, number, contact, receive, thing, be said, do, site, request, aviation, representative, order, deal, vacation, return, vacation, room, place, simple, reach, customer, minute, hello, cancel, price, stars, pay.

**Car rental:**

Vehicle, company, day, number, receive, date, say, branch, pay, road, there, customer, contact, garage, insurance, talk, service, call, do, address, time, note, hour, hello, credit, need, bring, month, arrive, manager, damage, directly, private, answer, telephone.

**Television**:

Technician, representative, customer, day, contact, service, arrive, company, request, minute, number, home, disconnect, month, date, telephone, say, converter, receive, there, hello, contact, call, representative, equipment, talk, hour, hot, month, problem, pay, install, wait, address, year, note.

**Cellular communications:**

Device, service, cell phone, receive, day, customer, number, company, representative, telephone, month, request, call, there, say, want, call, pay, do, new, contact, minute, contact, note, representative, year, manager, sim, reach, charge, time, repair, line**.**

**Wired communications:**

Service, internet, technician, day, simple, representative, customer, minute, receive, home, number, connection, company, call, talk, do, line, mega, hour, telephone, pay, money, month, talk, thank you, reach, representative, request, disconnect, month, infrastructure, year.

**The following analysis was performed according to the tables appearing in the appendix of the most common words in the entire database, and in the appendix of the one hundred most common words in each domain separately.**

**We will define the different colors:**

• **Yellow – Words related to the subject domain**

**• Purple – Words related to time**

**• Red – Words related to location**

**• Blue – Words related to service provider - customer relations**

**• Grey – Words related to money**

**• Turquoise – Words related to family**

**Most frequent content words by domain**:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Insurance** | **Hospitals** | **Vacation****deals** | **Car** **Rental** | **Television** | **Cellular****communications** | **Wired****communications** |
| 1 | insurance | patients | hotel | vehicle | technician | device | service |
| 2 | already | operation | flight | company | representative | service | internet |
| 3 | vehicle | home | road | day | customer | cell phone | technician |
| 4 | service | receive | day | receive | day | receive | day |
| 5 | policy | doctor | hour | date | contact | day  | representative |
| 6 | company | pay | order | say | service | customer | customer |
| 7 | direct | day | date | branch | arrive | number | second |
| 8 | days | note | say | pay | company | company | receive |
| 9 | insuredparty | say | company | road | request | representative | home |
| 10 | apartment | again | service | there | second | telephone | number |
| 11 | receive | do | there | customer | disconnect | month | contact |
| 12 | do | time | note | contact | month | request | company |
| 13 | day | emergencyroom | contact | garage | date | contact | contact |
| 14 | again | nurse | talk | insurance | telephone | say | do |
| 15 | customers | room | trip | talk | say | want | line |
| 16 | years | arrive | morning | service | converter | call | mega |
| 17 | cancel | doctor | contact | contact | receive | pay | hour |
| 18 | price | hour | receive | do | hello | month | telephone |
| 19 | hour | nose | be said | address | contact | address | pay |
| 20 | customer | test | do | time | call | second | money |
| 21 | money | need | site | note | representative | contact | month |
| 22 | representative | treatment | request | hour | equipment | note | talk |
| 23 | month | date | aviation | credit | talk | year | thank you |
| 24 | contact | number | representative | must | hour | manager | arrive |
| 25 | contact | address | order | bring | hot | sim | representative |
| 26 | obligation | able | deal | month | month | arrive | request |
| 27 | want | department | vacation | arrive | problem | charge | disconnect |
| 28 | confirmation | home | return | manager | pay | repair | month |
| 29 | insurer | boy | vacation | damage | installation | line | infrastructure |
| 30 | request | heart | room | directly | waiting |  | year |

**Table 4.2.3 Most frequent content words by domain**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Insurance** | **Hospitals** | **Vacation****deals** | **Car****Rental** | **Television** | **Cellular****communications** | **Wired****communications** |
|  | Insurance terms(7) | Hospital(12) | Vacation(8) | Vehicle(4) | Television(4) | Cell phone(7) | Telephony(7) |
|  |  | Location(1) | Location(3) | Location(3) |  |  | Location(1) |
|  | Service provider - customer relations(14) | Service provider - customer relations(9) | Service provider - customer relations(15) | Service provider - customer relations(16) | Service provider - customer relations(19)!!! | Service provider - customer relations(14) | Service provider - customer relations(14) |
|  | Time terms(7) | Time terms(5) | Time terms(4) | Time terms(5) | Time terms(6) | Time terms(5) | Time terms(6) |
|  | Money (2) | Money (1) | Money (2) | Money (2) | Money (1) | Money (2) | Money (2) |
|  |  | Family (2) |  |  |  |  |  |

 **Table 4.2.4 Analysis of the most frequent content words table**

**Analysis of the table by domain is as follows:**

**Insurance domain:**

* **There is importance to time.**
* **There is importance to service-provider – customer relations**
* **There is low importance to money.**

**Hospital domain:**

* **Of importance to the hospital – location, staff, attention.**
* **Family is mentioned**
* **Service is less important**
* **Money is almost entirely not mentioned**

**Vacation deal domain:**

* **Type of vacation is important.**
* **Contact with service provider and punctuality is very important**
* **Location has importance**
* **There is low importance to money**

**Car rental domain:**

* **Service provider treatment and punctuality are of high importance.**
* **Money is of low importance**

**Television domain:**

* **Service treatment and time stand out (more than all others)**
* **Money is almost entirely not mentioned**

**Cellular communications domain:**

**From analysis of the cellular communications column, we can discern**

* **The subject of the telephone is important (perhaps a detailed description of the telephone problem)**
* **Company attention and service provision time are important**
* **Money is of low importance**

**Wired communications domain:**

* **Of main importance is treatment and receiving service**
* **Time is important**
* **Money is of low importance**
* **Location is almost entirely not mentioned**

**Analysis of the most common content words in each field can indicate common characteristics of letter writers in the same field, as well as the subjects that concern them in the complaint letters. For this purpose, each of the 100 most common words was sorted in descending order of frequency. From these words, the function words were excluded, and only the content words were examined. The content words were divided into semantic fields, such as the field of communication, the field of medicine, money, time, place, etc., and whether there is significance to the frequency or infrequency of the use of a particular field in each domain was investigated.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Insurance** | **Hospitals** | **Vacation****deals** | **Car****Rental** | **Television** | **Cellular****communications** | **Wired****communications** |
| Service provider - customer relations(14) | Hospital(12) | Service provider - customer relations(15) | Service provider - customer relations(16) | Service provider - customer relations(19) | Serviceprovider - customer relations (14) | Serviceprovider - customer relations(14) |
| Insurance terms(7) | Service provider - customer relations(9) | Vacation(8) | Time terms(5) | Time terms(6) | Cell phone (7) | Telephony(7) |
|  |  |  |  |  |  |  |
| Time terms(7) | Time terms(5) | Time terms(4) | Vehicle(4) | Television(4) | Time terms(5) | Time terms(6) |
|  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Insurance** | **Hospitals** | **Vacation****deals** | **Car****Rental** | **Television** | **Cellular****communications** | **Wired****communications** |
| Money(2) | Family(2) | Location(3) | Location(3) | Money(1) | Money(2) | Money(2) |
|  |  |  |  |  |  |  |
|  | Money(1) | Money(2) | Money(2) |  |  | Location(1) |
|  |  |  |  |  |  |  |
|  | Location(1) |  |  |  |  |  |
|  |  |  |  |  |  |  |

**Table 4.2.5: Classification of content words in letter topics by semantic fields**

**According to the table, it was found that in all domains, apart from the 'hospitals' domain, there is extensive use of words from the semantic field of relations between the service provider and the customer.**

**In the field of 'hospitals', there is more importance to words from the semantic field of hospitals, and only after that comes the use of the semantic field of relations between the service provider and the customer.**

**The second field that is widely used in the domains of 'insurance', 'vacation deals', 'cellular communications' and 'wired communications' is the semantic field of the subject of the complaint (telephony in the field of wired communications, insurance in the insurance field, etc.). In these domains, and in the domain of 'hospitals', the third most important semantic field is that of time words.**

**In the domain of 'car rental' and 'television', the time words semantic field was found to be second in importance, and the semantic field of the subject of the complaint was third in its level of its use.**

**The semantic field 'location' appears only in the domains of 'hospitals' (sixth place), 'car rental' (fourth place) and 'wired communications' (fifth place).**

**The semantic field 'family' appears only in the field of 'hospitals' (fourth place).**

**The semantic field 'money' appears in the last place in all fields except the 'wired communications' domain.**

**From these findings, it can be concluded that the issue that most concerns the people who contacted the companies in question is the state of service of the company that is supposed to provide service. It seems that the frustration (mentioned above in the introduction) is most evident when the complainant feels that they are not receiving the service they were supposed to receive. Examples of words from this area that are widely used: talk, ask, disconnect, reach, representative, service, and more. This was especially evident in the domain of television (more than 60% of the words were in this semantic field).**

**The other issue that significantly preoccupies the complainants is time - the time of service provision, the lack of timely service, delays, etc. This was expressed in words such as date, again, years, day, month, minute, hour, already, and more.**

**A combination of these two fields shows that what is most important to the complainants is receiving good and efficient service from the service providers, delivered on time.**

**Only in the domain of hospitals, it seems that the subject of the complaint (the hospital itself) has the greatest importance: its location, its staff, and the relationship between the staff members and the family. These were expressed in the words: patients, surgery, doctor, nurse, emergency room, examination, treatment and more. It seems to us that the most important thing for hospital complainants is to receive reliable medical treatment, and this takes precedence, in the eyes of the patient, over the level of service.**

**It is known that companies are motivated primarily by economic considerations (XXX). According to our analysis, the issue that preoccupies complainants least of all is money; in almost all domains, it is in the last place in use. Much more important to them is good service and a considerate attitude, as well as punctuality. These findings may interest service providers, and help them to improve service, and focus on the most important areas.**