This document describes telephone data, recorded over 12 month (from 1/01/99 till 31/12/99), at the telephone call-center of “Anonymous Bank” in Israel.

The data was organized by Ilan Guedj, who was at the time a graduate student of the Faculty of Industrial Engineering and Management at the Technion, Haifa.

- The data is free for use. If used, please notify Avi Mandelbaum, at avim@ie.technion.ac.il and do acknowledge the data source in any of your work.
- A sample of the data, as an EXCEL worksheet, is included on the last page of the document.
- All files are zipped; after unzipping, they become an ASCII file, namely Plain Text (*.txt).
- The Internet site [http://ie.technion.ac.il/~serveng](http://ie.technion.ac.il/~serveng) contains a lot of material that is based on analysis of the present data.

**General Description**

The call center of "Anonymous Bank" provides several different services:

- Information on and transactions of checking and saving, to bank-customers
- Computer generated voice information (through VRU = Voice Response Unit)
- Information for prospective customers
- Support for the customers of "Anonymous Bank" web-site (internet customers)

The call center constitutes of:

- 8 agent positions
- 1 shift-supervisor position
- 5 agent positions for internet services (in an adjacent room)

During weekdays (Sunday to Thursday), the call center is staffed from 7:00am to midnight. During weekends (Friday-Saturday), it closes at 14:00 on Friday and reopens at around 20:00 on Saturday. The automated service (VRU) operates 7 days a week, 24 hours a day.
**Data Structure**

The data archives all the calls handled by the call center, over the period of 12 months from January 1999 till December 1999. The data consists of 12 files, a file per month. Each file consists of records (lines), a record per phone call (between 20,000 to 30,000 calls per month). Each record has 17 fields, which will now be described in details.

1) **vru+line - 6 digits**

   Each entering phone-call is first routed through a VRU: There are 6 VRUs labeled AA01 to AA06. Each VRU has several lines labeled 1-16. There are a total of 65 lines. Each call is assigned a VRU number and a line number.

2) **Call_id - 5 digits**

   Each entering call is assigned a call id. Although they are different, the id’s are not necessarily consecutive due to being assigned to different VRUs.

3) **Customer_id - 0 to 12 digits**

   This is the identification number of the caller, which identifies the customer uniquely; the ID is zero if the caller is not identified by the system (as is the case for prospective customers, for example).

4) **Priority - 1 digit**

   The priority is taken from an off-line file.

   There are two types of customers: (high-)priority and regular:
   - 0 and 1 indicate unidentified customers or regular customers (to be elaborated on below)
   - 2 indicates priority customers
   - Customers are served in the order of their "Time in Queue".
   - Priority customers are allocated at the outset of their call 1.5 minutes of waiting-time (in order to advance their position in the queue.) They are also exempt from paying a NIS 7 monthly fee, which regular customers must pay.
   - Customers have not been told about the existence of priorities.
   - Until August 1996, all the customers had the same priority - 0. Priorities 1 and 2 were introduced in August 1\(^{st}\), 1996. There still are 0 priority customers, but they are treated as Priority 1. (As we understand it, priority 0 corresponds to those customers that were assigned priority 0 before August 1\(^{st}\) and whose priority has not been upgraded.)
• Due to a system bug, customer I.D. was not recorded for those who did not wait in queue, hence, their priority is 0.

5) **Type - 2 digits**

There are 6 different types of services:
• PS - regular activity (coded 'PS' for 'Peilut Shotefet')
• PE - regular activity in English (coded 'PE' for 'Peilut English')
• IN - internet consulting (coded 'IN' for 'Internet')
• NE - stock exchange activity (coded 'NE' for 'Niarot Erech')
• NW - potential customer getting information
• TT – customers who left a message asking the bank to return their call but, while the system returned their call, the calling-agent became busy hence the customers were put on hold in the queue.

6) **Date - 6 digits**

year-month-day

7) **vru_entry - 6 digits**

Time that the phone-call enters the call-center. More specifically, each calling customer must first be identified, which is done by providing the VRU with the customer-id. Hence this is the time the call enters the VRU.

8) **vru_exit - 6 digits**

Time of exit from the VRU: either to the queue, or directly to receive service, or to leave the system (abandonment).

9) **vru_time - 1 to 3 digits**

Time (in seconds) spent in the VRU (calculated by exit_time – entry_time).

10) **q_start - 6 digits**

Time of joining the queue (being put on “hold”). This entry is 00:00:00, for customers who have not reached the queue (abandoned from the VRU).

11) **q_exit - 6 digits**

Time (in seconds) of exiting the queue: either to receive service or due to abandonment.

12) **q_time - 1 to 3 digits**

Time spent in queue (calculated by q_exit – q_start)

13) **Outcome - 4,5 or 7 digits**

There are 3 possible outcomes for each phone call:
- AGENT - service
- HANG - hung up
- PHANTOM - a virtual call to be ignored (unclear to us – fortunately, there are only few of these.)

14) **ser_start - 6 digits**
   Time of beginning of service by agent.

15) **ser_exit - 6 digits**
   Time of end of service by agent.

16) **ser_time - 1 to 3 digits**
   Service duration in seconds (calculated by ser_exit – ser_start)

17) **Server - text**
   Name of the agent who served the call. This field is NO_SERVER, if no service was provided.
| vru_time | call_id | customer_id | priority | type | date | vru_entry | vru_exit | vru_time | q_start | q_exit | q_time | outcome | ser_start | ser_exit | ser_time | server |
|----------|---------|-------------|----------|------|------|----------|----------|----------|---------|-------|--------|---------|----------|----------|----------|--------|-------|
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