

Subject: Application 9 - Black Jack

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Technical Memorandum

1 Introduction

Application 9 in AudioSaver, will run a simulated Black Jack game. All tasks such as keeping track of which cards have been dealt, and player totals are taken care of by functions built into AudioSaver. Should the player win they will be allowed to leave their name, address, and telephone number to be contacted for prize awarding.

2 Perspective

2.1 Black Jack from the Callers Perspective

When the caller dials into a mailbox set to run Black Jack, they will be asked if they are a first time caller, and either be presented with a detailed set of rules, or a shorter version. They will then play seven games of Black Jack. If they win four or more of these games, they will be asked one of twenty true or false questions. If they answer this question correctly they will be a finalist and allowed to leave contact information.

2.2 Black Jack from the Administrators Perspective

Once Black Jack is setup it is a very low maintenance program. The computer will run the game and only allow those callers who answer the true or false question correctly to leave their contact information.

3 Grunt Setup

The following is the grunt table for Black Jack:

Step	Opening	Grunt	NStep	P1	Ngrunt	NStep	P2
1	INTRO	INSTR	3	7	NULL	2	7
2	RULES	NULL	3	1	NULL	3	1
3	FIRST	M??00	4	3	M??00	4	3
4	SECON	M??01	5	1	M??01	5	1
5	PTOT	M??02	6	1	M??02	6	1
6	DSHOW	M??03	7	0	M??03	7	0
7	SILEN	M??04	8	0	M??04	8	0
8	HIT	M??05	9	3	NULL	12	0
9	PTOT	M??02	8	0	M??02	8	0
10			0	0		0	0
11			0	0		0	0
12	DEALD	M??06	13	0	M??06	13	0
13	DTOT	M??07	14	0	M??07	14	0
14	DHIT	M??08	13	5	M??08	13	5
15			0	0		0	0
16			0	0		0	0
17	SILEN	M??09	0	0	M??09	0	0
18			0	0		0	0
19	CONGR	M??0Q	0	0	M??0Q	0	0
20	SILEN	CORR	22	0	INCOR	35	0
21	SILEN	INCOR	35	0	CORR	22	0
22	RRRRR	SILEN	36	5	NULL	36	5
23			0	0		0	0
24			0	0		0	0
25			0	0		0	0
26			0	0		0	0
27			0	0		0	0
28	PYRBJ	M??0I	3	8	M??0I	3	8
29	DLRBJ	M??0I	3	1	M??0I	3	1
30	BUST	M??0I	3	1	M??0I	3	1
31	LOSER	M??0I	3	1	M??0I	3	1
32	WIN	M??0I	3	8	M??0I	3	8
33			0	0		0	0
34	NOQUA	NULL	35	0	NULL	35	0
35	RETRY	M??0I	3	10	NULL	36	0
36	OUTRO	NULL	0	0	NULL	0	0

Here is a text outline of what the grunt table will do when run:

- Step 1: Play audio file INTRO, which asks the user to say yes if they are a first time caller. If they say yes, it will play audio file INSTR (a detailed set of instructions), and proceeds to step 3. If they remain silent, it will proceed to step 2, and play audio file RULES (a simple set of instructions for people who have played before), and proceed to step 3.

- Step 3: Plays audio file FIRST (saying “Your first card is...”), and calls function M??00 which returns a random card and the corresponding audio file. The application now proceeds to step 4.
- Step 4: Plays audio file SECON (saying “Your second card is...”), and calls function M??01 which returns a second random card and its corresponding audio file. The application proceeds to step 5.
- Step 5: Plays audio file PTOT (saying “Your total is...”), and calls function M??02, which adds the values of both your cards and plays an audio file containing the total value. It then goes to step 6.
- Step 6: This step will play the file DSHOW (saying “The dealer’s showing card is...”), and call function M??03 which will call the audio file containing the audio for the value of the dealer’s card. Execution now flows to step 7.
- Step 7: This step calls function M??04 which will check for either a player or a dealer black jack. If it detects a player black jack it will jump to step 28 and if it detects a dealer black jack it will jump to step 29. Otherwise, step 8 will be next.
- Step 8: File HIT will be presented (saying “Say yes if you would like another card.”), if the player says yes, function M??05 will be called giving the player another card, and the application will jump to step 9. If the player remains quiet, the application will just proceed to step 12.
- Step 9: File PTOT will be played again, and the caller will be given an updated total. The application will then loop back to step 8, and this pattern will continue until the caller no longer wants another card.
- Step 12: This step will play audio file DEALD (saying “The dealer’s down card is...”), and call function M??06, which will play the corresponding audio file containing the card value. Step 13 will be called next.
- Step 13: DTOT will now be played saying “The dealer’s total is...”, and function M??07 will be called. This will play the dealer’s total, and go to the appropriate step. If the dealer’s total is > 21, step 32 will be next. If it equals 21, step 31 will be next, and if the dealer’s total is greater than 16, step 17 will be next. If the dealer’s total is less than or equal to 16 it will proceed to step 14.
- Step 14: Audio file DHIT (saying “The dealer hits and gets a...”) will be played, and function M??08 will be called giving the dealer another card and telling the caller what the dealer got. The application then loops back to step 13.

- Step 17: This step will be reached when the dealer's total is over 16, but not equal to 21 or higher. Function M??09 will be called which compares the dealer's and caller's totals. If the Dealer's total is greater then or equal to the caller's the application will proceed to step 31. If the caller's total is greater then the dealer's the application will flow to step 32.
- Step 19: This step will be reached when the caller has won four or more of the seven hands. File CONGR will be played congratulating the player, and telling them that they will now receive a true or false question. They will be instructed to say yes if they wish to answer true, and remain silent if they wish to answer false. Function M??0Q is now called, which will pick a random number from 1 to 20, and play the corresponding voice file. If the number picked is odd the application will go to step 20, and if it is even, the application will go to step 21.
- Step 20: This is for odd numbered questions which will all have to be true. If the caller says yes, for true, file CORR is played telling them they are correct and they proceed to step 22. If they remain in silence (picking false), they will receive file INCOR, telling them they are wrong, and they will be sent to step 35.
- Step 21: This is for even numbered questions which will all have to be false. If the caller says yes, for true, file INCOR is played and they are sent to step 35. If they remain silent, choosing false, they will hear file CORR, and be sent to step 22.
- Step 22: This step calls function RRRRR in it's opening. This function will allow the caller to record their contact information. For this recording to work, file CORR played just before recording begins should tell them that they should now leave their information, and parameter ppp71 must be set to 1. An MSG directory must be present in the PEC directory. This is where all recordings will be stored. P value in this step will be the number of seconds to record for in units of 5 (for example a five will set it to 25 seconds). Files will be in the format '#####\$\$\$.%%%', ##### is the mailbox number, \$\$\$ is the line number, and %%% is the number of wins. For example, if the caller is in mailbox number 1944, on line 1, and has won four games when they leave their message, the file will be saved as or appended to the file 1944001.004 in the MSG directory.
- Step 28: This step will be reached when the caller gets a black jack. File PYRBJ will be played, notifying the player they have won with a black jack, and function M??0I is called which resets all variables, and returns to step 3 to play the next game.
- Step 29: This step will be reached when the dealer gets a black jack. File DLRBJ will be called telling the caller that they have lost, because the dealer has gotten a black jack, and function M??0I is called which resets all variables, and returns to step 3

to play the next game.

- Step 30: This step will be reached when the player busts (goes over 21). It will play file BUST, telling the player that they have busted, and will call function M??0I which will reset all variables and proceed to step 3 for the next game.
- Step 31: This step will be reached when the dealer's total is over the player's or equal to it. File LOSER will be played, telling the player they have lost, and function M??0I will be called, which will reset all variables and loop back to step 3.
- Step 32: This step will be reached when the player's total is over the dealers's. File WIN will be played, telling the player they have won the hand, and function M??0I will be called, resetting all variables and returning to step 3.

NOTE: Steps 28 - 32 will loop back to step 3 until all seven hands have been played. If after all seven hands have been played, the caller has won four or more, the application will move to step 19. If the caller has won three or less hands, the application will move to step 34.

- Step 34: This step will play file NOQUA, telling the caller that they do not receive a question, because they failed to beat the dealer at more than 3 hands. Step 35 is called next.
- Step 35: This step plays file RETRY, asking the caller to say yes if they wish to play again. If they say yes, M??0I will be called again, resetting all variables and looping back to step 3. If not step 36 will be called.
- Step 36: File OUTRO will be called, saying goodbye, and the call will be disconnected.

There are twelve functions specific to Black Jack. They are as follows. All P parameters should not be changed for any functions.

- M??00 - When called this function will return the callers first card and play the associated voice file. The voice file should be named Mxx00, where:
- xx = 1 for an ace
 - xx = 2 through 10 for two through ten
 - xx = 11 for a jack
 - xx = 12 for a queen
 - xx = 13 for a king
- M??01 - Runs in the same fashion as M??00, except it is used for the players second card.
- M??02 - Calculates players total, and plays the corresponding voice file. The voice files for

this function should be in the format Mxx01. Where xx is the players total from 04 to 31.

- M??03 - This function returns the dealers up card, and uses the same files that function M??01 and M??02.
- M??04 - This function is used to check for black jack, and does not play any voice files.
- M??05 - This function gives the player another card, and uses the same files as M??00 to tell the caller which card they have recieved.
- M??06 - This function returns the dealers down card, and works in the same way that M??03 does.
- M??07 - This function returns the dealers total, and uses the same files as M??02.
- M??08 - This function gives the dealer a hit, and works in the same fashion as M??05.
- M??09 - This function compares the dealer's and player's totals, and moves to the appropriate step.
- M??0I - This function resets variables for another hand to be played. It does not call any voice files.
- M??0Q - This file returns a random true or false question. The questions should be in the format Mxx02. "xx" is the question number from 1 to 20. Odd numbered questions must be true, and even numbered questions must be false.

4 Recordings

Recordings should be made for the following files:

- INTRO - A file containing an introduction to the game, and asks the caller if they are a first time caller or not.
- RULES - A short set of rules for callers who have called before.
- INSTR - A detailed set of rules for first time callers.
- FIRST - A voice file containing a message similar to "Your first card is..."
- SECON - A voice file containing a message similar to "Your second card is..."

- PTOT - A voice file containing a message similar to “Your total is...”
- DSHOW - A voice file containing “The dealer’s showing card is...”
- HIT - A voice file prompting the caller to say yes if they want to get another card.
- DEALD - A voice file containing “The dealer’s down card is...”
- DTOT - A voice file containing “The dealer’s total is...”
- DHIT - A voice file containing “The dealer hits and gets a...”
- CONGR - A voice file notifying the caller that they have won more than four hands, and they will now receive a question.
- RRRRR - A voice file telling the caller that they are a finalist, and they will be notified for prize info.
- PYRBJ - A voice file telling the player that they have gotten blackjack.
- DLRBJ - A voice file telling the caller that dealer has gotten blackjack.
- BUST - A voice file telling the caller that they have busted.
- LOSER - A voice file telling the caller that they have lost the current hand.
- WIN - A voice file telling the caller that they have won the current hand.
- NOQUA - A voice file telling the caller that they will not receive a question because they did not win 4 or more hands.
- RETRY - A voice file asking the caller to say yes if they wish to play again.
- OUTRO - A goodbye message, thanking the caller and asking them to call again.

5 Running the Game

A Mailbox should now be setup in AudioSaver to run and test this application. The proper directory where your grunt table and voice files are stored should be entered in the GruntDir field.