



## **Case Study:**

# **Application Modernization**

June 27, 2016

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# Agenda

- What is Modernization
- Why we did the effort
- How long did this take
- The old and the new
- What we learned and how we worked around issues
- Questions

# **What is Modernization ?**

**A New UI ?**

**Move to OO ?**

**A Re-write ?**

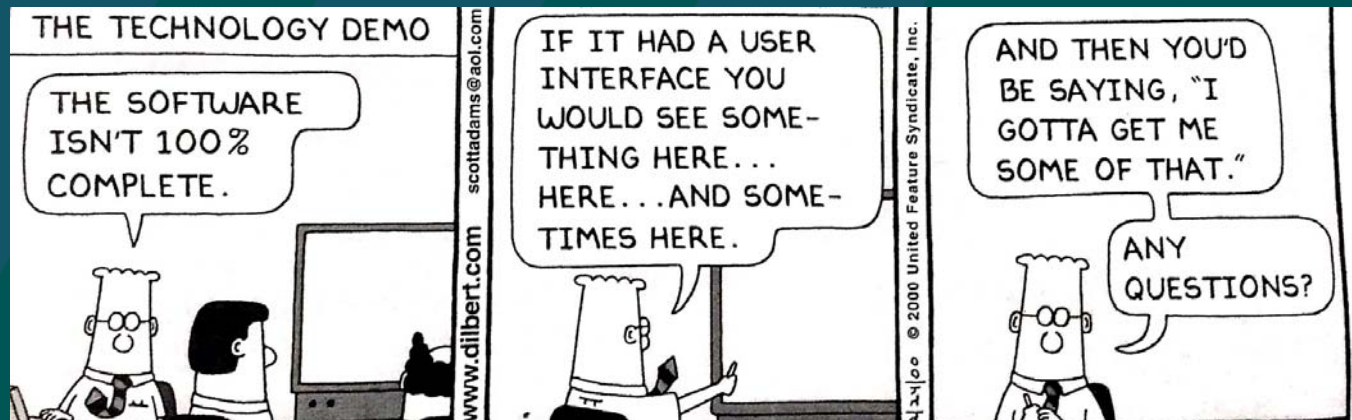
**Something else**

# Why we did this

We wanted to expose our new consultants to a real application to get some practical experience

We wanted to prove the process

We had a subject matter expert who could work with the team



## **The “old” application**

**Character procedural code with embedded UI and business logic**

**The user interface is 80x25 terminal**

**There were database issues (field names) that were outdated**

**The code constructs and style were Progress v6 based**

# The New Environment

**PDSOE was used for development, currently using restbroker but designed to support the Progress Application Server.**

**Developed in OpenEdge 11.5.1**

**The existing business logic was harvested into new Object Oriented Business Entities**

**The new application uses REST services and JSON datasets**

**The UI is Kendo, jQuery and Bootstrap**

**The UX team provided a vision to the team**

**ABL Unit was used to perform reproducible unit test cases of each condition in the new Business Entities**

# The Benefits

**Runs on any computer using just the browser**

**Mobility can be leveraged by using Tablets**

**Interface is self-explanatory and extremely easy to use**

**User Interface relies on technologies with wide availability of professionals  
(JavaScript, HTML5, CSS)**

**Modern User Experience can improve end-user productivity**

**Architecture can help reduce infrastructure costs**

**Uses current IT leading Security Technology  
(Tomcat & Spring Security framework)**

## **What was done:**

**Login page**

**Single Page Application Landing Page with Menu**

**6 Maintenance screens (CRUD) converted**

**Patron Inquiry function migrated (approx. 130 character screens)**

**88 new web template pages created**

**34 new Business Entities created**



**How long did it take ?**

**Good question.**

**Staff:**

**1 Senior developer who knew the application very well**

**5 Junior developers**

**Time:**

**Total of 10 weeks elapsed time**

# Agenda

- What is Modernization
- Why we did the effort
- How long did this take
- The old and the new
- What we learned and how we worked around issues
- Questions

# The current look of the application

```
SYCO ***** CASINO DEVELOPMENT COMPANY ***** USER: RXM
10/28/15 1:40 PM

- System Control Menu -
A. Main Menu >>
B. Menus
C. Licenses
D. Web Services Menu >>
E. Stations
F. Printers
G. Test Station Printers
H. Printer Types
I. Reprint Reports
J. Reprint Own Reports
K. Purge Reports
L. Menu Object Reference
M. System Tables Menu >>
N. System Configuration Menu >>
O. System Interface Menu >>

Select an option. Press F9 for keyboard options.
```

# The vision from the UX team

The screenshot displays a user interface for a Casino Royale Patron Profile. The top navigation bar includes the 'CASINO ROYALE' logo, a search bar, and a user profile for 'Kevin Gray'. The main content area is titled 'Patron Profile' and features a profile card for 'James Bond' with a photo, name, ID number, and gender. Below the profile card is a 'Patron Summary' menu with options like History, Cage, Activity, Balance, Ratings, and More. The dashboard is divided into several data visualization sections: 'Average Activity Per Trip' (bar chart), 'Average Expenses' (table), 'Theoreticals' (list), and 'Trip Participation' (donut chart).

### Patron Profile

James Bond  
#000000007  
♂ Male 11/07 Crown  
[More Details](#)

#### Patron Summary

- History
- Cage
- Activity
- Balance
- Ratings
- More

#### Average Activity Per Trip (Last 10 Trips)

Activity	Average Activity
Tables	500
Slots	2300
Poker	0
Bingo	0
Keno	0
Playbook	700

#### Theoreticals

Tables	BJ
Slots	5
Bingo	BG
Racebook	RB
Total Theoreticals	3603

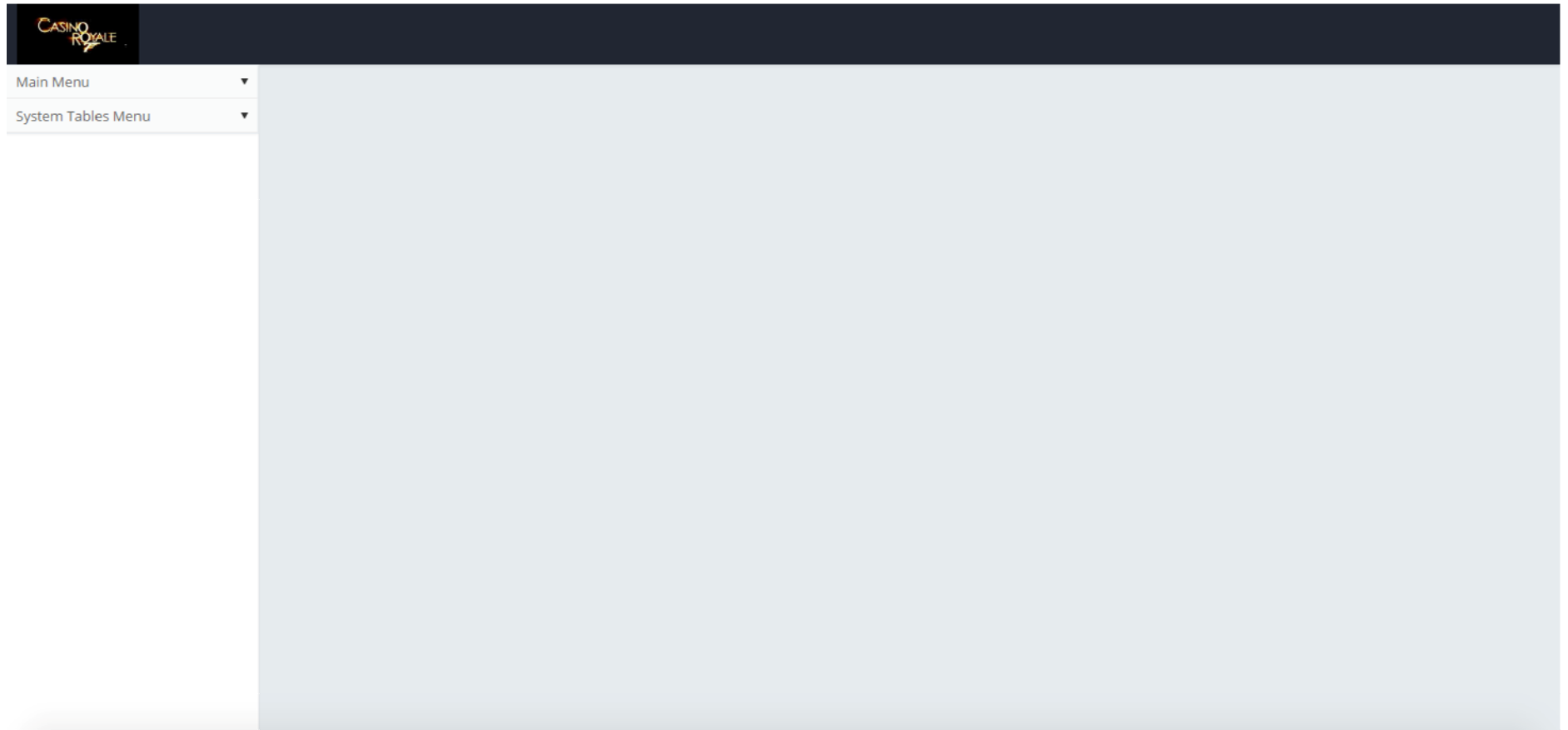
#### Average Expenses (Last 10 Trips)

Room	\$0
Food (ALDR)	\$106
Show (ENTR)	\$40
Retail	\$0
Travel (BUSC)	\$0
Other (WCSH)	\$248
<b>Total</b>	<b>\$429</b>

#### Trip Participation (Last 10 Trips)

Category	Percentage
Coupons/Offers	14%
Table Tournaments	1%
Drawings	5%
Promotional Events	1%

# The reality



# Current Maintenance Screens

SYDEPFMT \*\*\*\*\* CASINO DEVELOPMENT COMPANY \*\*\*\*\* USER: RXM

## Department Maintenance

Department: 10001

Description: PEQUOT ACADEMY

Last Modified By: 11187      03/27/95    11:08:57

Add   Modify   Delete   Report   Quit  
First   Last   Next   Previous   Search

Select this option to view the First record.

# The reality

CASINO ROYALE

Main Menu ▾  
System Tables Menu ▲  
Security Groups  
Companies  
Divisions  
**Departments**  
Countries  
States

### Departments Maintenance

[+ Add new record](#)

Department Number	Name	Last Modified	Modified By	Options
10001	PEQUOT ACADEMY	1995-03-27	11187	<a href="#">Edit</a> <a href="#">Deactivate</a>
10105	GAMES ADMINISTRATION	1993-05-22	SADM	<a href="#">Edit</a> <a href="#">Deactivate</a>
10110	TABLE GAMES	1993-05-22	SADM	<a href="#">Edit</a> <a href="#">Deactivate</a>
10115	INTERNATIONAL ROOM	1997-05-16	11187	<a href="#">Edit</a> <a href="#">Deactivate</a>
10201	SLOT ADMINISTRATION	1993-05-22	SADM	<a href="#">Edit</a> <a href="#">Deactivate</a>
10205	SLOT OPERATIONS	1993-05-22	SADM	<a href="#">Edit</a> <a href="#">Deactivate</a>
10210	HORSE RACE GAME	1994-03-13	276	<a href="#">Edit</a> <a href="#">Deactivate</a>
10215	SLOT MECHANIC	1993-05-22	SADM	<a href="#">Edit</a> <a href="#">Deactivate</a>
10220	COIN CASHIERS	1993-05-22	SADM	<a href="#">Edit</a> <a href="#">Deactivate</a>
10230	HARD COUNT	1993-05-22	SADM	<a href="#">Edit</a> <a href="#">Deactivate</a>

1 2 3 4 5 6 7 8 9 10 ... 1 - 10 of 810 items

# Current Patron Search

KKCUSACT \*\*\*\*\* CASINO DEVELOPMENT COMPANY \*\*\*\*\* USER: RXM

Patron Choices - Press F6 to Zoom, F5 for Advanced Search

Pa	BOND, JAMES Ø JR	00000002	11/01/1957	Active Credit
	MOUSE, MICKEY	00000021	12/01/2034	Active Credit
	PATRON, B C	00000024	01/01/1960	Active Credit
Li	WIGGLEY, PIGGLEY JR	00000014	01/01/1970	
M				

Primary Club:

Expires:

NewCard:

Activity Per Trip For The Last 10 Trips

10 Trip Participation

Trips:  
 Tables: Room:  
 Slots: Food:  
 Poker: Show:  
 Bingo: Retail:  
 Keno: Travel:  
 Racebook: Other:  
 Total: Total:

Slot Tournaments:  
 Table Tournaments:  
 Keno Tournaments:  
 Sweepstakes:  
 Drawings:  
 Bring-A-Buddy:  
 Promotional Events:  
 Coupon/Offer:




# The reality

The screenshot displays a web application interface for 'CASINO ROYALE'. On the left is a navigation menu with the following items: 'Main Menu', 'Casino Management', 'Player Rating Menu', 'Patron Activity Inquiry', and 'System Tables Menu' (which is highlighted in orange). The main content area is titled 'Patron Inquiry' and features a search bar labeled 'Search By Last Name' with a 'Search' button. Below the search bar is a table with the following headers: 'Customer Number', 'Name', 'Stop', 'Sex', 'Birthdate', and 'Primary Club'. The table is currently empty. At the bottom of the table area, there is a pagination control showing '0' items and a 'No items to display' message with a refresh icon.

Customer Number	Name	Stop	Sex	Birthdate	Primary Club
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# The reality



Main Menu ▲  
Casino Management ▲  
Player Rating Menu ▲  
Patron Activity Inquiry ▲  
**System Tables Menu ▼**

### Patron Inquiry

Search By Last Name  Search

Customer Number	Name	Stop	Sex	Birthdate	Primary Club	
00000002	BOND, JAMES O JR		Male	1957-11-01	CROWN	<input type="button" value="Choose"/>
00000014	WIGGLEY, PIGGLEY JR		Male	1970-01-01	WILD	<input type="button" value="Choose"/>
00000021	MOUSE, MICKEY	VZI	Male	2034-12-01	WILD	<input type="button" value="Choose"/>
00000022	SMITH, JAMES	S	Male	1980-08-13	WILD	<input type="button" value="Choose"/>
00000023	PATRON, A B JR	S	Male	1980-08-13	WILD	<input type="button" value="Choose"/>
00000024	PATRON, B C	VI	Female	1960-01-01	WILD	<input type="button" value="Choose"/>

◀ ◁ 0 ▷ ▶ ▶▶ No items to display 🔄

# Patron Landing Screen

KKCUSACT \*\*\*\*\* CASINO DEVELOPMENT COMPANY \*\*\*\*\* USER: RXM

## Patron Activity Inquiry

Patron#: 00000002 Rank: 3C Sex: M CTR: C Birthday: 11/01/1957  
 Name: BOND, JAMES O JR Stop: Junket:  
 License: MA 812787128748 Spouse: 00001019 Rep: LLAMA ACTU  
 MailTo: Home MailCode: Mailable Rep Team:  
 Primary Club: CROWN Expires: 09/30/15 NewCard: No

### Ave Activity Per Trip For The Last 10 Trips

	AveTheo	Average Expenses
Trips: 10		
Tables: BJ	330	Room: 0
Slots: 5	2300	Food: 108
Poker: 0		Show: 0
Bingo: BG	15	Retail: 0
Keno: 0		Travel: 0
Racebook: RB	758	Other: 142
Total:	3403	Total: 250

### 10 Trip Participation

Slot Tournaments:	0
Table Tournaments:	4
Keno Tournaments:	0
Sweepstakes:	0
Drawings:	6
Bring-A-Buddy:	0
Promotional Events:	0
Coupon/Offers:	15

**Summ** Hist Trips Months Years Jnkts Kmnts piNs carD cLub sWap Quit  
 Bal Open Ratings Comps colUps Adjs Promos eVents rEServ caGe actIvity

Select this option to access profitability Summary.

# The reality

The screenshot shows a web interface for 'CASINO ROYALE'. On the left is a navigation menu with the following items: Main Menu, Casino Management, Player Rating Menu, Patron Activity Inquiry, and System Tables Menu (which is highlighted). The main content area displays a profile for 'BOND, JAMES O JR' with ID '00000002'. The profile includes a circular photo of a man, gender 'Male', birth date '1957-11-01', and casino 'CROWN'. Below this, it lists 'Rank: 3C', 'Spouse: 00001019', 'License: MA 812787128748', and 'Rep: LLAMA'. A 'Stop Codes:' section is also present. A vertical list of menu items is shown on the right side of the profile, including History, Summary, Trips, Months, Years, Clubs, Balances, Adjustments, Promotions, Cage, and Activity. The right half of the page is a large, empty light gray area.

# Patron Activity Screen

KKCUSACT \*\*\*\*\* CASINO DEVELOPMENT COMPANY \*\*\*\*\* USER: RXM

## Patron Activity Inquiry

Patron#: 00000002 Rank: 3C Sex: M CTR: C Birthday: 11/01/1957  
 Name: BOND, JAMES O JR Stop: Junket:  
 License: MA 812787128748 Spouse: 00001019 Rep: LLAMA ACTU  
 MailTo: Home MailCode: Mailable Rep Team:  
 Primary Club: CROWN Expires: 09/30/15 NewCard: No

### Ave Activity Per Trip For The Last 10 Trips

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Slots: 5	2300	Food: 108
Poker: 0		Show: 0
Bingo: BG	15	Retail: 0
Keno: 0		Travel: 0
Racebook: RB	758	Other: 142
Total:	3403	Total: 250

### 10 Trip Participation

Slot Tournaments:	0
Table Tournaments:	4
Keno Tournaments:	0
Sweepstakes:	0
Drawings:	6
Bring-A-Buddy:	0
Promotional Events:	0
Coupon/Offerers:	15


**Trips** Days Months Lifetime  
 total Average Quit

Select this option to view activity for last 10 trips.

# The reality

CASINO ROYALE

- Main Menu ▲
- Casino Management ▲
- Player Rating Menu ▲
- Patron Activity Inquiry
- System Tables Menu ▼



**BOND, JAMES O JR**  
00000002

♂ Male 1957-11-01 CROWN

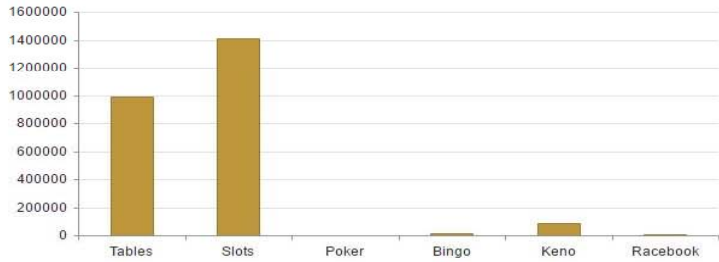
Rank: 3C Spouse: 00001019  
License: MA 812787128748 Rep: LLAMA

Stop Codes:

- Balances ▶
- Adjustments ▶
- Promotions ▶
- Cage ▶
- Activity ▶
- Open Ratings
- Rating History
- Comps
- Coupons
- Events
- Reservations
- Junkets

### Total Activity Per Trip

Patron's Lifetime



Game Type	Activity
Tables	~1,000,000
Slots	~1,400,000
Poker	~100,000
Bingo	~50,000
Keno	~100,000
Racebook	~50,000

### Theoreticals

Tables	CD
Slots	\$
Poker	PK
Bingo	BG
Keno	KE
Racebook	RB
<b>Total Theoreticals</b>	<b>2511848</b>

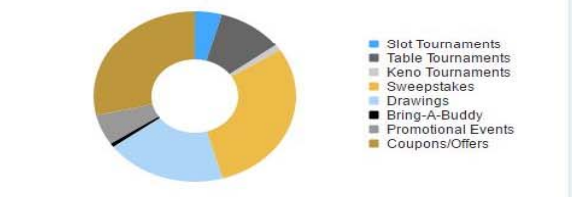
### Total Expenses

Patron's Lifetime

Room	5251592
Food	191176
Show	326
Retail	10
Travel	156531
Other	696958
<b>Total</b>	<b>6296593</b>

### Trip Participation

Patron's Lifetime



- Slot Tournaments
- Table Tournaments
- Keno Tournaments
- Sweepstakes
- Drawings
- Bring-A-Buddy
- Promotional Events
- Coupons/Offers

# Patron Club Screen

KKCUSACT \*\*\*\*\* CASINO DEVELOPMENT COMPANY \*\*\*\*\* USER: RYM

## Patron Activity Inquiry

Patron#: 00000002 Rank: 3C Sex: M CTR: C Birthday: 11/01/1957  
 Name: BOND, JAMES O JR Stop: Junket:

**A T T E N T I O N !**  
 CROWN CARD HOLDER.

Club	Daily Qualifying Statistics			Period Qualifying Stats 10/01/15 to 09/30/16			Qlfd Next	Expire Date	New Card
	Daily Thresh	Daily Points	Daily Needed	MinQlfy Points	TotQlfy Points	QlfyPnts Needed			
WILD	0	0	0	1	0	1	No	09/30/17	N/A
CROWN	0	0	0	800	0	800	No	09/30/15	No
KING	10	0	10	2,500	0	2,500	No	09/30/16	N/A
ACE	25	0	25	5,000	0	5,000	No	09/30/16	N/A
ROYAL	100	0	100	10,000	0	10,000	No	09/30/16	N/A


Others: PLATINUM<06/30/13> DOMESTIC<09/30/14> TGDBLPTS<03/31/14> Exc: NONE

Press any key to continue.

# The reality

CASINO ROYALE

- Main Menu ▲
- Casino Management ▲
- Player Rating Menu ▲
- Patron Activity Inquiry
- System Tables Menu ▼



**BOND, JAMES O JR**  
00000002

♂ Male    📅 1957-11-01    🏆 CROWN

Rank: 3c    Spouse: 00001019  
License: MA 812787128748    Rep: LLAMA

Stop Codes:

Clubs

Current Trips
Previous Trips
Qualifying Statistics

Congratulations James on achieving your Crown membership! Please pick up your new card at any Rewards booth.

You Need to earn 2,500 points to achieve King membership.

Your total qualifying points are 0 and need 2,500 more to progress.

Today, you have currently earned 0 reward points.

All points earned today will qualify towards your club reward program.

Club	Daily Qualifying Statistics			Period Qualifying Statistics 10/01/2015 to 09/30/2016			Qlfd Next	Expire Date	Has New Card
	Daily Thresh	Daily Points	Daily Needed	Min Qlfy Points	Tot Qlfy Points	Qlfy Pnts Needed			
WILD	0	0	0	1	0	1	false	09/30/2017	N/A
CROWN	0	0	0	800	0	800	false	09/30/2015	false
KING	10	0	10	2500	0	2500	false	09/30/2016	N/A
ACE	25	0	25	5000	0	5000	false	09/30/2016	N/A
ROYAL	100	0	100	10000	0	10000	false	09/30/2016	N/A

Others: PLATINUM(06/30/13) DOMESTIC(09/30/14) TGDBLPTS(03/31/14)  
Exc: NONE

- History ▶
- Summary ▶
- Trips ▶
- Months ▶
- Years ▶
- Clubs
- Balances ▶
- Adjustments ▶
- Promotions ▶
- Cage ▶
- Activity ▶
- Open Ratings ▶



# Patron Summary Screen

KKCUSACT \*\*\*\*\* CASINO DEVELOPMENT COMPANY \*\*\*\*\* USER: RXM

## Patron Activity Inquiry

Patron#: 00000002 Rank: 3C Sex: M CTR: C Birthday: 11/01/1957  
 Name: BOND, JAMES O JR Stop: Junket:  
 License: MA 812787128748 Spouse: 00001019 Rep: LLAMA ACTU  
 MailTo: Home MailCode: Mailable Rep Team:


## Patron Profitability Summary

	10 Trips	12 Months	Lifetime	Points:	92992.66
Theo Win:	34033	44	2511848	Overdraft:	1000.00
Pnts Earned:	4181	10	427126	Available:	93992.66
NonGaming:	130	0	13823	Eligible:	87969.26
Discounts:	0	0	517734	CashValue:	\$ 43984.63
Coupons:	159	0	3455	Credit:	50000.00
				Available:	50000.00
Theo Net:	29564	34	1549710	Deposits:	0.00
Theo %:	87%	77%	62%	Safekeep:	419601.00
				Trips:	194.00


**Theoretical** Actual Quit

Select this option to display Theoretical win.

# The reality



- Main Menu ▲
- Casino Management ▲
- Player Rating Menu ▲
- Patron Activity Inquiry
- System Tables Menu ▼



**BOND, JAMES O JR**  
00000002

♂ Male 📅 1957-11-01 🏆 CROWN

Rank: 3C Spouse: 00001019  
License: MA 812757128748 Rep: LLAMA

Stop Codes:

**Theoretical Patron Summary**

10 Trips

Win	Points	Non Game	Discount	Coupon	Actual Net	Actual Percent
-142760	4181	130	0	158	138291	97

12 Months

Win	Points	Non Game	Discount	Coupon	Actual Net	Actual Percent
-44	10	0	0	0	34	77

Lifetime

Win	Points	Non Game	Discount	Coupon	Actual Net	Actual Percent
-3888243	427126	13823	517734	3455	2926105	75

Current Values

Points	Overdraft	Available	Eligible	Cash Value	Credit	Available	Deposit	Safekeep	Trips
92992.66	1000	93992.66	87969.26	-43984.63	50000	50000	0	419601	194

- History ▶
- Summary ▶
- Trips ▶
- Months ▶
- Years ▶
- Clubs
- Balances ▶

The background of the slide is a solid teal color. On the left side, there are several overlapping, diagonal stripes in a slightly darker shade of teal, creating a layered, geometric effect.

**What we learned and how we worked  
around issues**

## **Related Sessions:**

**484: Give Your Project a Spark**

**380: A Simple Approach to Modernize WebSpeed  
with Kendo UI**

**844: Pulling Back the Curtain on Application  
Modernization**

The background of the slide features a repeating pattern of downward-pointing chevrons in a teal color, set against a dark charcoal grey background. The chevrons are arranged in a staggered, overlapping fashion, creating a sense of depth and movement.

**Questions ?**

**PUGCHALLENGE**  **EXCHANGE**  
AMERICAS 