

01/20: Risks and Prototypes

The Capstone Experience

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*From Students...
...to Professionals*

01/20: Announcements

- Check Website Team Photo Names and Hometowns
- Use Google Calendar
 - Must Use MSU Email Address
 - Watch for Double Booking
- Apple Developer License
 - Request Invitation from Dr. D.
 - Team Members are Members
 - Angela is Admin
- PowerPoint Slide Deck Submission Instructions
 - Read Carefully
 - File Name Conventions
 - All Lower Case
 - Replace Blanks with Dashes
- Does anyone need equipment?
- Project Plan Document and Presentation
 - Presenting and Due Dates
 - Schedule Conflicts
 - Read READ ME
- Issues? Problems? Questions?



Risks and Prototypes

➤ Risks

- Prototypes

Identifying Risks

- What You Don't
 - Know
 - Understand
 - Know How to Do
- Normally
 - Major Project Features
 - “Showstoppers”
- Varies From
 - Not Familiar With But (Probably) Can Learn to
 - Absolutely No Idea How to Do It

What are you worried about?

What should you be worried about?



Example Risks

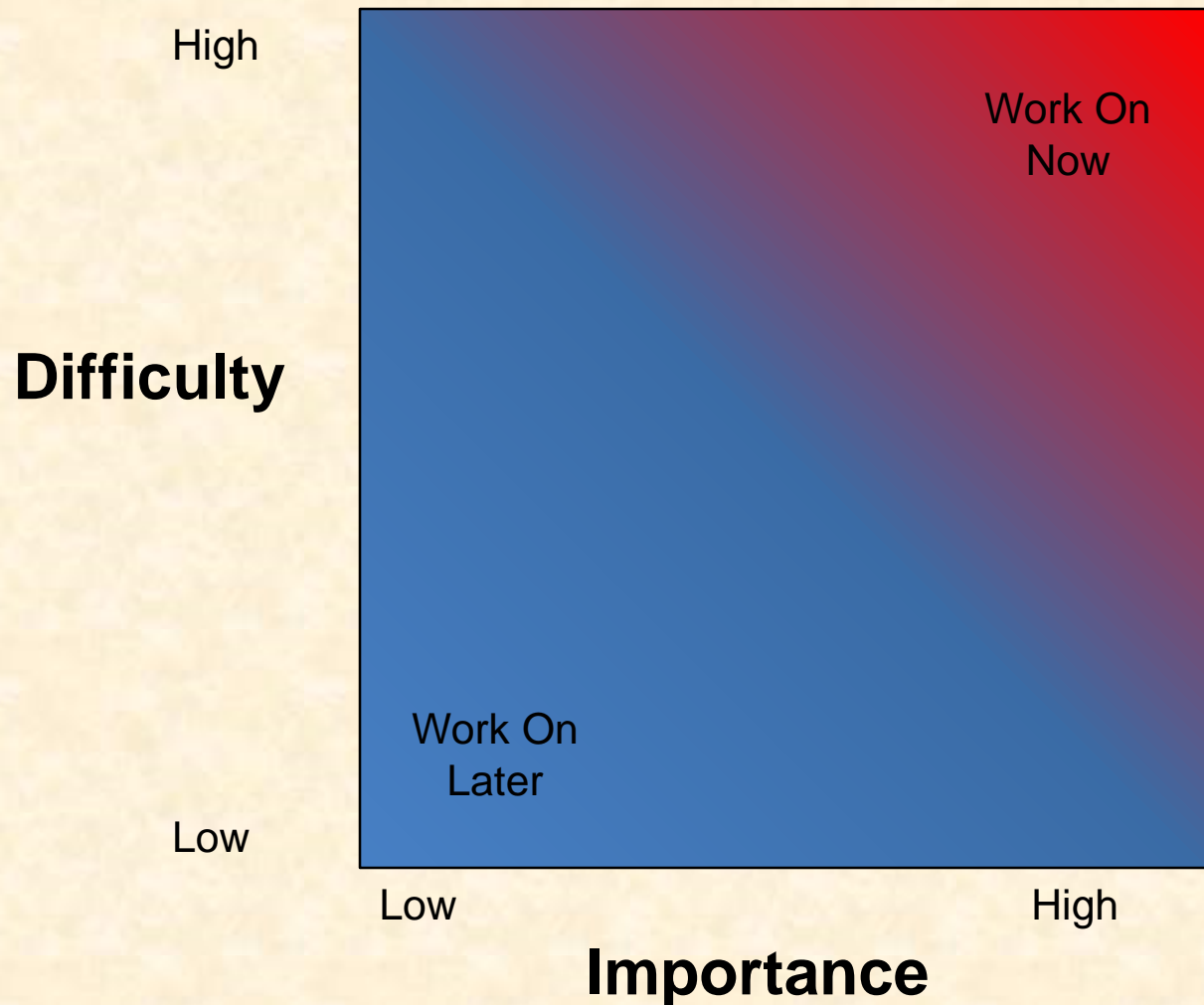
Including but not limited to...

- Key Application Features
- Hardware Systems
- Software Systems
- Development / Programming Environments
- Programming Languages
- Etc...

Prioritizing Risks

- Classify Difficulty
 - High Very Hard, No Idea How to Do
 - Medium
 - Low Not Hard, Probably Doable
- Classify Importance
 - High Showstopper, Must Have
 - Medium
 - Low Not Vital, Nice to Have

Prioritizing Risks

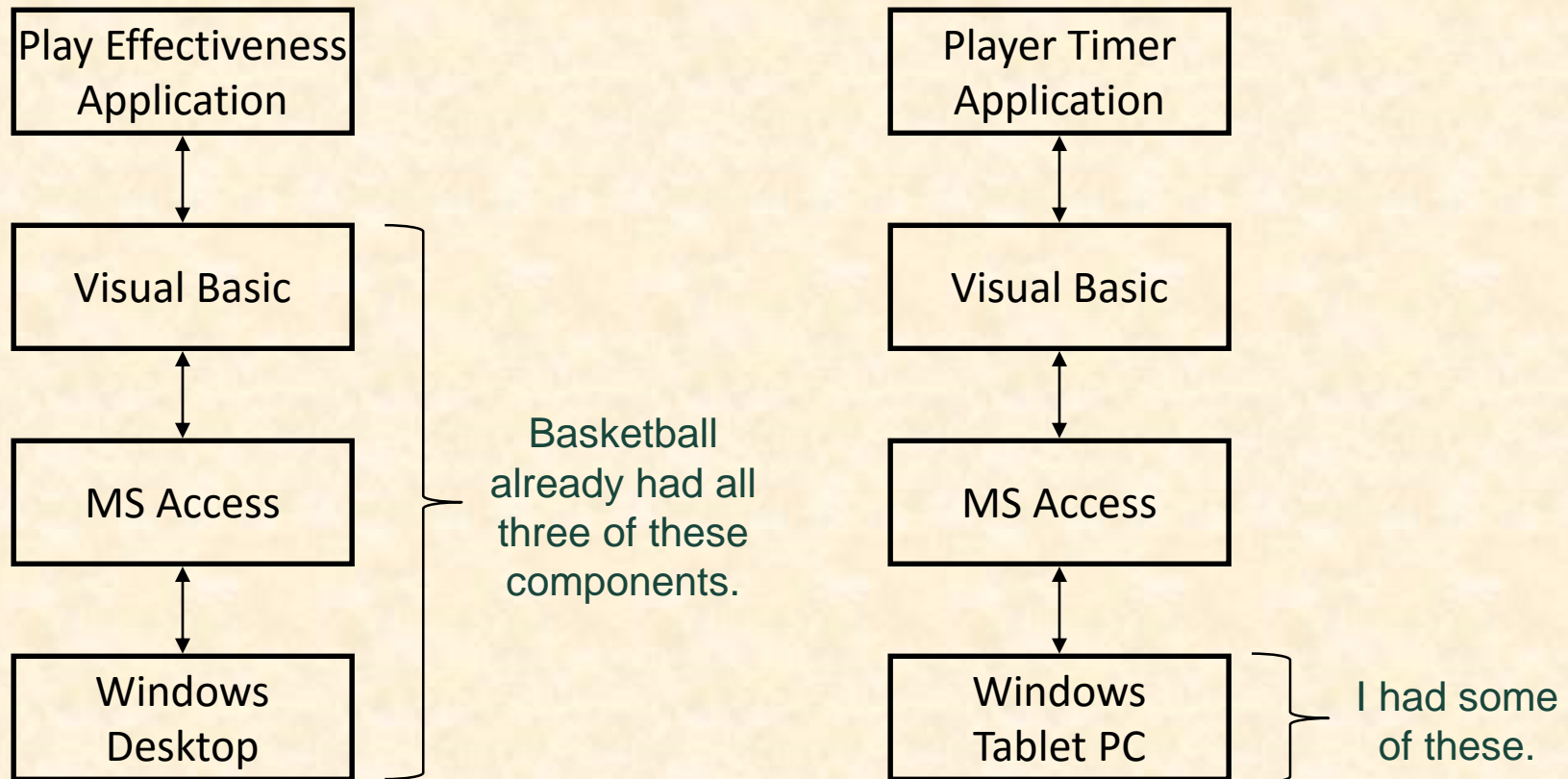


Case Studies: Basketball Apps

- Play Effectiveness
 - Determine Effectiveness of Plays
 - Record All Plays with Results
 - Produce Reports of Effectiveness
- Player Timer
 - Keep Track of Player Times
 - Record Minutes Played and Rested
 - Use On the Bench, During the Game



Basketball Apps Architectures



Basketball Apps Risks

- What SDK should I use?
- How do I program in Visual Basic?
- How do I generate a report from Access?
- How do I make a GUI in VB?
- How do I interface VB with Access?
 - Create/Open/Save a Database?
 - Read/Write Records?
 - Traverse Records?
- How do I implement clocks in Windows?
 - Game Clock?
 - Wall Clock?

Mitigating Risks

- Use Existing Resources

- Including But Not Limited To

- Product Demos
 - Book Sample Code
 - Downloadable Examples
 - Wizards
 - Etc...

- Test Drive

- Install
 - Compile
 - Extend
 - Etc...

- Build Prototypes

- Single Purpose
 - Quick-and-Dirty

Nota Bene:

1. Check license if including in project.
2. Document.
3. Inform client.



Basketball Apps Risk Mitigation

- Game Clock
 - Start /Stop
 - Counts Down
 - By Minutes:Seconds
- Handling Access Records
 - Write Number
 - Read Number
 - Add Up Numbers

Start	19:55
Stop	

Write	7
Read	14
Add Up	55



Risks and Prototypes

✓ Risks

➤ Prototypes

Prototypes

- Developed
 - Early
 - Rapidly
- Implement Subset of the Requirements
- Done for Variety of Reasons
- Are Not Finished Goods
- “Hacking” (Good Sense)

Why? Answer Questions

Help Determine...

- Specifications
 - Functional
 - Design
 - Technical
- Usability
- How Existing Code Works
- Programming Languages
- Development Environments
- Operating Environments
- What to Panic About
- Etc...



Why? Determine Schedule

Determine how long it will take to...

- ...learn the new programming language.
- ...learn the development environment.
- ...learn the existing code.
- ...convert the existing code.
- ...convert the existing database.
- ...get libraries working.
- ...deploy the application onto an iOS device.
- ...Etc....



Why? Reduce Risk

- Operability
 - How do we make a game clock?
 - Where do we store the data?
- Interoperability
 - How does the game clock work with other tablets?
 - How do the tablets all write to the same database?
- Scalability
 - Will the game clock propagate in real time?
 - Will the database engine keep up?
- Reliability
 - What happens if the clock tablet dies?
 - What happens if the database tablet dies?
- Etc-Ability...



Speed (to Write)

- Critical
- 2-3 Day Tasks
- Use Whatever Works
 - RAD Languages
 - SDK's
 - IDE's
 - Design Tools
 - Wizards
 - Sample Code
 - Etc...
- Stop When Questions Answered



Tradeoffs: Speed (to Write) vs...

- Speed vs Best Practices
 - Testing
 - Documentation
 - Security
 - Software Engineering
 - Usability
 - Performance
 - Coding Standards
 - User Interface Standards
 - Using Real Data
 - Etc...
- Hence, Normally Not Appropriate in Final Deliverable



Challenge/Danger

- “Hack” Solution

- It works.
- It’s ***a*** way to do something.

vs

- “Correct” Solution

- It works.
- It’s the ***“right”*** way to do something.
(There may be more than one “right” way to do something.)

Often My Biggest
Frustration



Basketball Prototypes Case Studies

- Play Effectiveness
- Player Timer
- Radio Stats
- Real Time Play Stats
- Plus/Minus



Play Effectiveness App

- Functional Specifications
 - Determine Effectiveness of Plays
 - Record All Plays with Results
 - Produce Reports of Effectiveness
 - Each Play
 - # of Successes / # of Attempts
- Design Specifications?
- Technical Specifications?



Initial Meeting with Video Coordinator

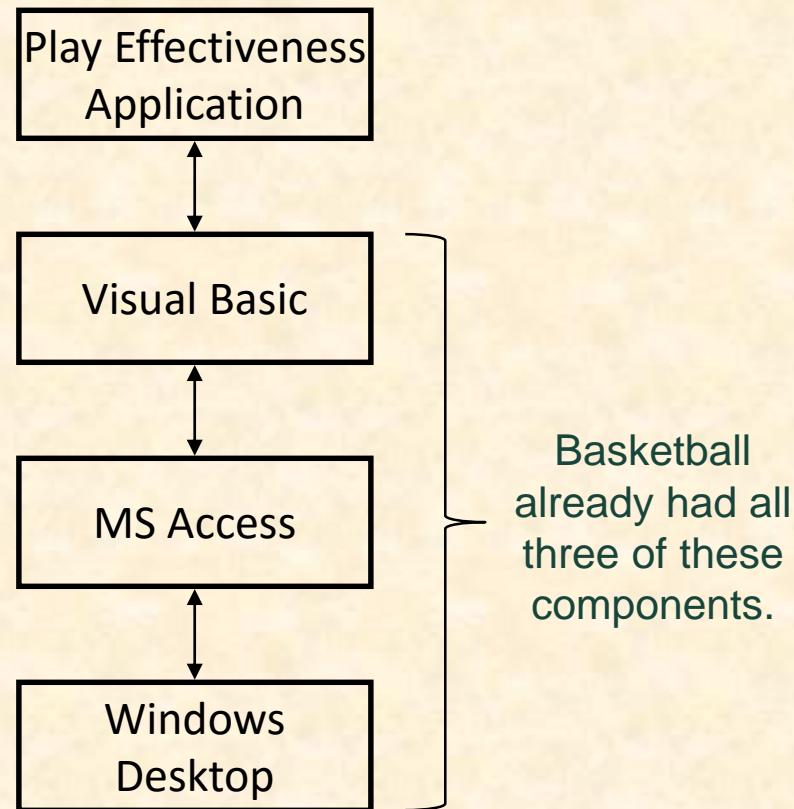
I Learned...

- Done After Game
 - On Desktop Computer
 - From DVR-Like App
- Lots of Plays (~ 200) in Play Book
- ~20-40 Plays Run Per Game
- Plays Categorized
 - Early Offense 1,2 (i.e., Fast Breaks)
 - Offense 1,2 (i.e., Half Court Plays)
 - Special Situations 1,2 (i.e., Out of Bounds)
- Overwhelming ← Can you relate?

The
Business
Processes



Play Effectiveness Architecture



Risks

- Learning Basketball Business Processes
- Programming in Visual Basic
- Making a GUI in VB
- Interfacing VB with Access
 - Creating/Opening/Saving a Database
 - Reading/Writing Records
 - Traversing Records
- Generating Reports in Access
- Etc...



BB Stats Alpha V1

Detail

Game

Opponent	Harvard University	Location	Boston
Date	July 4, 1776	Number	1776070401

Play

P#	48
T	12:34
C#	426
EO1	Run
EO2	Gun
01	1-4 Screen
02	Low Post
SS1	SLOB
SS2	Blah
R	Two Pointer
Notes	Feed to Adams. Washington always gets the rebound. Jefferson or Hamilton should take the shot.

Roster

1	00:00	00:00	Adams, John
2	00:00	00:00	Jefferson, Tom
3	00:00	00:00	Washington, George
4	00:00	00:00	Franklin, Ben
5	00:00	00:00	Hamilton, Alex

Next Play

BB PE PV1

(Prototype Version 1)

Fields

- P# Play Number
- T Time
- C# Clip Number
- EO Early Offense
- O Offense
- SS Special Situations
- R Result

Nota Bene

- Just Screen Layout
- No Code (Underneath)
- Never Have All Entries Filled at Once



What I Learned From PV1

(1 of 2)

- Wanted to Identify Plays Within a Possession
- Plays Categorized Series / Set
 - Set is Variation on Series (“Parameterized Plays”)
 - E.g.
 - Series: Thumbs
 - Sets: Up, Down, Circle
 - Plays: Thumbs Up, Thumbs Down, Thumbs Circle
 - 1, 2 Notation
 - EO1 = Early Offense Series
 - EO2 = Early Offense Set
 - ST (Special Teams) Missing

Huge
Impact On
Design



What I Learned From PV1

(2 of 2)

- Results Coded
 - *XN* Missed *N* Pointer (X1, X2, X3)
 - *ON* Made *N* Pointer (O1, O2, O3)
 - *FF* Foul on the Floor
 - *TO* Time Out
 - Etc...
- Wanted to Record Notes on Defense
- Didn't Care About
 - Player Times
 - Video Clip Number (C#)



BB Stats Alpha V1

Detail

Game

Opponent	Harvard University	Location	Boston
Date	July 4, 1776	Number	1776070401

Play

P#	48
T	12:34
C#	426
EO1	Run
EO2	Gun
O1	1-4 Screen
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4	00:00	00:00	Franklin, Ben
5	00:00	00:00	Hamilton, Alex

Next Play

So, from this to...

BB PE PV1

Fields

- P# Play Number
- T Time
- C# Clip Number
- EO Early Offense
- O Offense
- SS Special Situations
- R Result

Nota Bene

- Just Screen Layout
- No Code (Underneath)
- Never Have All Entries Filled at Once



BB Stats Alpha V2

Detail

Play

T 12:34 PO# 12 PL# 17

	Series	Set
EO	Early Offense	Corner (Rescreen-Post)
OF	Zone Offense	Jersey - Side Ball Screen
ST	BLOB	Quick Post for Perimeter
SS	2 For 1	Blah Blah
R	O2	
DF	Man-to-Man	
Notes	Feed to Adams. Washington always gets the rebound. Jefferson or Hamilton should take the shot.	

Roster

1	Adams, John
2	Jefferson, Tom
3	Washington, George
4	Franklin, Ben
5	Hamilton, Alex

Commands

Insert Play Insert Possession

Clear Play

Save Play

Delete Play

Game

Opponent	Harvard University	Location	Boston
Date	July 4, 1776	Number	1776070401

BB PE PV2

Fields

- PO#
Possession Number
- PL#
Play Number
- SS
Special Situations
- DF
Defense

Nota Bene

- Just Screen Layout
- No Code (Underneath)
- Would **NOT** Have Entries in All Fields



What I Learned From PV2

- Wanted to Grade Effectiveness of Plays
- Wanted to Record Player Steals and Assists (Remember this...)
- Needed to Navigate Plays and Possessions
- Wanted to See Running Score



BB Stats Alpha V2

Detail

Play

T 12:34 PO# 12 PL# 17

	Series	Set
EO	Early Offense	Corner (Rescreen-Post)
OF	Zone Offense	Jersey - Side Ball Screen
ST	BLOB	Quick Post for Perimeter
SS	2 For 1	Blah Blah
R	O2	
DF	Man-to-Man	
Notes	Feed to Adams. Washington always gets the rebound. Jefferson or Hamilton should take the shot.	

Roster

1	Adams, John
2	Jefferson, Tom
3	Washington, George
4	Franklin, Ben
5	Hamilton, Alex

Commands

Insert Play Insert Possession

Clear Play

Save Play

Delete Play

Game

Opponent	Harvard University	Location	Boston
Date	July 4, 1776	Number	1776070401

So, from
this to...

BB PE PV2

Fields

- PO#
Possession Number
- PL#
Play Number
- SS
Special Situations
- DF
Defense

Nota Bene

- Just Screen Layout
- No Code (Underneath)
- Would **NOT** Have Entries in All Fields



Detail

Play

PE#	2	Time	12:34	PL#	17	MSU	37	Op	23
	Series			Set			Effectiveness		
EO	Early Offense			Corner (Rescreen-Post)			Great		
ST	BLOB			Quick Post for Perimeter			Poor		
OF	Zone Offense			Jersey - Side Ball Screen			So-So		
R	X			O			Outstanding		
DF	Man-to-Man			Something Else			Good		
SS	2 For 1			Blah Blah			Unreal		

Notes

Feed to Adams. Washington always gets the rebound. Jefferson or Hamilton should take the shot.

Game

Opponent	Harvard University	Location	Boston
Date	11/17/2003	Number	1776070401

Roster

P	Player	S	A
1	Unbound	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	Jefferson, Tom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	Washington, George	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	Franklin, Ben	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	Hamilton, Alex	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Commands

Next Play	Next Possession
Previous Play	Previous Possession
Delete Play	Delete Possion
Exit	



What I Learned From PV3

- Wanted...
 - Grades to Be A, B, C, D, F
 - Results to Be X1, O1, X2, O2,...
 - Results Associated With Players
 - Series/Set Combined
("Thumbs Up" Rather Than "Thumbs", "Up")
 - To Record Player Rebound
- Will be used by...
 - Video Coordinator, GAs, and Managers
 - Very Familiar with DVR Controls
- Did NOT Want to Record Player Steals or Assists



Detail

Play

PE#	2	Time	12:34	PL#	17	MSU	37	Op	23
	Series			Set			Effectiveness		
EO	Early Offense			Corner (Rescreen-Post)			Great		
ST	BLOB			Quick Post for Perimeter			Poor		
OF	Zone Offense			Jersey - Side Ball Screen			So-So		
R	X			O			Outstanding		
DF	Man-to-Man			Something Else			Good		
SS	2 For 1			Blah Blah			Unreal		

Notes

Feed to Adams. Washington always gets the rebound. Jefferson or Hamilton should take the shot.

Roster

P	Player	S	A
1	Unbound	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	Jefferson, Tom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	Washington, George	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	Franklin, Ben	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	Hamilton, Alex	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Commands

Next Play

Next Possession

Previous Play

Previous Possession

Delete Play

Delete Possion

Exit

So, from
this to...

Game

Opponent	Harvard University	Location	Boston
Date	11/17/2003	Number	1776070401



Season

Game

OpponentHarvardDateThursday, July 04, 1776

LocationBoston, MATime7:00 PM

VenueIvy League ChallengeTVNot Yet

⏮ ⏪ ⏩ ⏭ ⏮ ⏭

Game ID17760704

Possessions

Clock

Period1Possession0MSU0

Time20:00Play0Opponent0

Game ID17760704

Series / Set

Early Offense

Offense

Special TeamsBLOB, 3 Across

Special Situations

Offense ResultX3Offense GradeB

Defense

Defense ResultDefense Grade

Roster

ResultRebnd#Player

1Adams, John

2Jefferson, Tom

X33Washington, George

4Franklin, Ben

5Hamilton, Alex

ResultRebnd#Player

Notes

Possession Buttons

⏮ ⏪ ⏩ ⏭ ⏮ ⏭

Play Buttons

⏮ ⏪ ⏩ ⏭ ⏮ ⏭

Miscellaneous Buttons

⏮ ⏪ ⏩ ⏭ ⏮ ⏭

Record: ⏮ 1 of 6 ⏭ ⏮ ⏭ No Filter Search

BB PE AV1

(Alpha Version 1)

First Version
With Code

Not Much
Implemented



What I Learned From Alpha 1

- Entering a Play
 - Some Things Calculated Automatically
 - Play/Possession Number
 - Score
 - Most Things Entered With Mouse Via Pull-Down Menus
 - Series / Set
 - Result
 - But Time Entered With Keyboard Via Typing Numbers
- Need
 - Mouse-Only Input
 - Easy Way to Adjust Clock



Season

Game

Opponent: Harvard Date: Thursday, July 04, 1776

Location: Boston, MA Time: 7:00 PM

Venue: Ivy League Challenge TV: Not Yet

Game ID: 17760704

Possessions

Clock

Period: 1 Possession: 0 MSU: 0

Time: 20:00 Play: 0 Opponent: 0

Game ID 17760704

Series / Set

Early Offense: [Dropdown]

Offense: [Dropdown]

Special Teams: BLOB, 3 Across [Dropdown]

Special Situations: [Dropdown]

Offense Result: X3 [Dropdown] Offense Grade: B [Dropdown]

Defense: [Dropdown]

Defense Result: [Dropdown] Defense Grade: [Dropdown]

Roster

Result	Rebnd	#	Player
[Dropdown]	<input type="checkbox"/>	1	Adams, John [Dropdown]
[Dropdown]	<input type="checkbox"/>	2	Jefferson, Tom [Dropdown]
X3 [Dropdown]	<input type="checkbox"/>	3	Washington, George [Dropdown]
[Dropdown]	<input type="checkbox"/>	4	Franklin, Ben [Dropdown]
[Dropdown]	<input type="checkbox"/>	5	Hamilton, Alex [Dropdown]

Notes

Possession Buttons

[Previous] [Previous] [Next] [Next] [Next] [Next]

Play Buttons

[Previous] [Previous] [Next] [Next] [Next] [Next]

Miscellaneous Buttons

[Undo] [Eraser] [Sum] [Home] [Refresh] [Stop]

Record: 1 of 6 No Filter Search

BB PE AV1

(Alpha Version 1)

First Version
With Code

Not Much
Implemented

So, from
this to...



Season

Game

OpponentHarvardDateThursday, July 04, 1776

LocationBoston, MATime7:00 PM

VenueIvy League ChallengeTVNot Yet

Game ID17760704

Possessions

Clock

Period1Possession1MSU0Time18:07

Play1Opponent0

Series / Set

Early Offense

Offense1-4 Series, 1-4 Go

Special Teams

Special Situations

Offense ResultO2Offense Grade

Defense

Defense Result

Defense Grade

Roster

ResultRebnd#Player

1Adams, John

2Jefferson, Tom

O23Washington, George

4Franklin, Ben

5Hamilton, Alex

ResultRebnd#Player

Notes

Possession Buttons

Miscellaneous Buttons

Play Buttons

Game ID17760704

Record: 1 of 1

BB PE AV2

Still Not Much
Implemented



Season

Game

OpponentHarvardDateThursday, July 04, 1776

LocationBoston, MATime7:00 PM

VenueIvy League ChallengeTVNot Yet

Game ID17760704

Possessions

Clock

Period1Possession1MSU0Time18:07

Play1Opponent0

Series / Set

Early Offense

Offense1-4 Series, 1-4 Go

Special Teams

Special Situations

Offense ResultO2Offense Grade

Defense

Defense Result

Defense Grade

Roster

ResultRebnd#Player

1Adams, John

2Jefferson, Tom

O23Washington, George

4Franklin, Ben

5Hamilton, Alex

ResultRebnd#Player

Notes

Possession Buttons

Miscellaneous Buttons

Play Buttons

Game ID17760704

Record: 1 of 1

BB PE BV1

(Beta Version 1)



Basketball Prototypes Case Studies

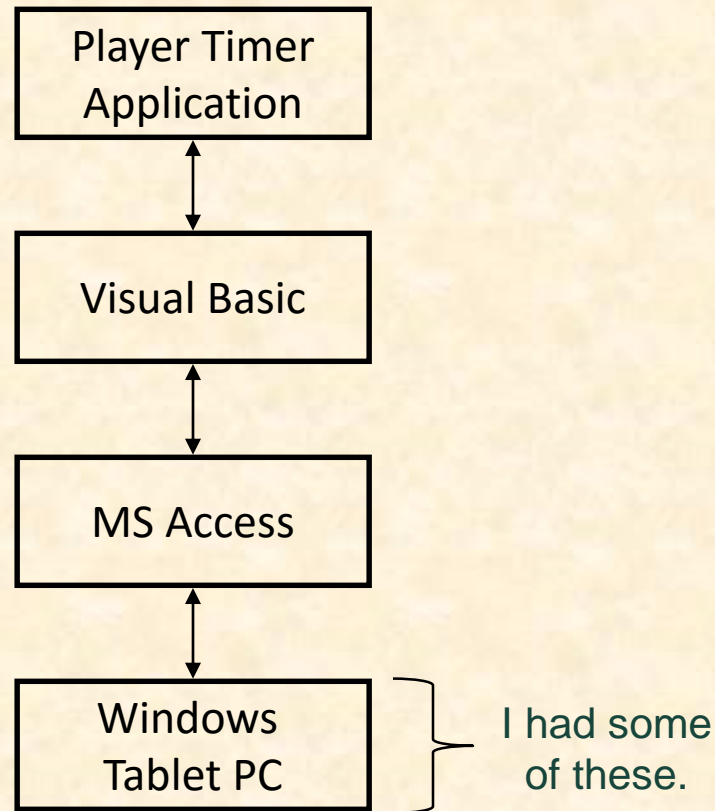
- ✓ Play Effectiveness
 - Player Timer
 - Radio Stats
 - Real Time Play Stats
 - Plus/Minus

Player Timer App

- Keep Track of Player Times
- For Each Player Record
 - Minutes Played
 - Game Clock Time
 - Consecutive & Total
 - Minutes Rested
 - Wall Clock Time
 - Consecutive
- Must
 - Be Usable on the Bench, During the Game
 - Be Portable and Not Require Electrical Outlet
 - Feel Like a Pen and a Clipboard



Player Timer App



Risks

- Learning Basketball Processes
- Implementing Clocks in Windows?
 - Game Clock
 - Wall Clock
- Very Limited Screen Real Estate
- Computing and Displaying Cumulative Times
- Hidden Risk (“Danger Will Robinson!”)

Player Timer Development

- Knew Exactly What They Wanted, So...
 - Designed “Final” Version
 - User Interface
 - Data Base Schema
 - Etc...
 - Coded “Final” Version
 - Lab Tested “Final” Version
 - Field Tested “Final” Version
 - In Practice Scrimmage
 - Totally and Completely Unusable
 - Scrapped “Final” Version UI and Started Over
- Huge Mistake!



Player Timer - Spartan Basketball Stats

Home

Period

1

Michigan State Spartans
Men's Basketball

Time
16:19

Start the Clock

		Checked Out				Check Player In / Out	Checked In			
		Time		#	Player		#	Player	Time	
		Current	Remaining						Current	Remaining
<input checked="" type="checkbox"/>	1	1:12	1:48			3	Allen	0:04	3:56	
<input checked="" type="checkbox"/>	2	1:52	1:08	41	Gray			0:33	3:27	
<input checked="" type="checkbox"/>	3	0:00	3:00	23	Green			0:00	4:00	
<input checked="" type="checkbox"/>	4	0:00	3:00			40	Herzog	3:07	0:53	
<input checked="" type="checkbox"/>	5	0:00	3:00	0	Ibok			0:00	4:00	
<input checked="" type="checkbox"/>	6	0:27	2:33	1	Lucas			3:37	0:24	
<input checked="" type="checkbox"/>	7	0:00	3:00	34	Lucious			0:00	4:00	
<input checked="" type="checkbox"/>	8	0:00	3:00			2	Morgan	3:41	0:20	
<input checked="" type="checkbox"/>	9	0:00	3:00	10	Roe			0:00	4:00	
<input checked="" type="checkbox"/>	10	0:00	3:00			15	Summers	2:58	1:02	
<input checked="" type="checkbox"/>	11	0:00	3:00			14	Suton	3:41	0:20	
<input checked="" type="checkbox"/>	12	0:00	3:00	5	Walton			0:00	4:00	

Start the Clock

View Game Stats

Check Out All

Begin the Period

End the Period

Load Roster

Open

Exit

Form View

Player Timer

Software Updates

- Enable Clock Adjustments (While Clock Stopped)
- Enable Check In/Out By Touching
 - Check In/Out Button
 - Player Name
 - Player Slot
- Allow > 5 Players Checked In (While Clock Stopped)
- Enable Pending Check In (While Clock Running)
- Eliminate All Modal Dialog Boxes

Basketball Prototypes Case Studies

- ✓ Play Effectiveness
- ✓ Player Timer
 - Radio Stats
 - Real Time Play Stats
 - Plus/Minus

Microsoft Access - [Bader's Radio Statistics]

File Edit View Insert Format Records Tools Window Help

Type a question for help

Michigan State University								13	19 / 23	83%	22	5	78	
LR	SR	R	"-"	PF	O1	X1	%O1	O2	O3	Total				
Brown, Shannon								3	0	4 / 4	100%	2	1	11
<input checked="" type="checkbox"/>	1	R		PF	O1	X1	%O1	O2	O3	Total				
Hill, Chris								5	2	2 / 2	100%	0	0	2
<input checked="" type="checkbox"/>	2	R		PF	O1	X1	%O1	O2	O3	Total				
Neitzel, Drew								12	2	1 / 2	50%	2	0	5
<input checked="" type="checkbox"/>	3	R		PF	O1	X1	%O1	O2	O3	Total				
Ager, Maurice								13	3	2 / 3	67%	6	0	14
<input checked="" type="checkbox"/>	4	R		PF	O1	X1	%O1	O2	O3	Total				
Anderson, Alan								15	4	2 / 2	100%	3	3	17
<input checked="" type="checkbox"/>	5	R		PF	O1	X1	%O1	O2	O3	Total				
Torbert, Kelvin								23	5	0 / 0	-	2	1	7
<input checked="" type="checkbox"/>	6	R		PF	O1	X1	%O1	O2	O3	Total				
Bograkos, Tim								30	0	0 / 0	-	0	0	0
<input checked="" type="checkbox"/>	7	R		PF	O1	X1	%O1	O2	O3	Total				
Naymick, Drew								34	1	0 / 0	-	0	0	0
<input checked="" type="checkbox"/>	8	R		PF	O1	X1	%O1	O2	O3	Total				
Davis, Paul								40	3	8 / 10	80%	6	0	20
<input checked="" type="checkbox"/>	9	R		PF	O1	X1	%O1	O2	O3	Total				
Rowley, Delco								50	0	0 / 0	-	0	0	0
<input checked="" type="checkbox"/>	10	R		PF	O1	X1	%O1	O2	O3	Total				
Ibok, Idong								0	0	0 / 0	-	0	0	0
<input checked="" type="checkbox"/>	11	R		PF	O1	X1	%O1	O2	O3	Total				
Gray, Marquise								42	0	0 / 0	-	0	0	0
<input checked="" type="checkbox"/>	12	R		PF	O1	X1	%O1	O2	O3	Total				

Duke								12	17 / 24	71%	15	7	68	
LR	SR	R	"-"	PF	O1	X1	%O1	O2	O3	Total				
Redick, J.J.								4	0	2 / 2	100%	1	3	13
<input checked="" type="checkbox"/>	1	R		PF	O1	X1	%O1	O2	O3	Total				
Ewing, Daniel								5	3	2 / 4	50%	5	2	18
<input checked="" type="checkbox"/>	2	R		PF	O1	X1	%O1	O2	O3	Total				
Melchionni, Lee								13	1	2 / 2	100%	1	2	10
<input checked="" type="checkbox"/>	3	R		PF	O1	X1	%O1	O2	O3	Total				
McClure, David								14	0	0 / 0	-	0	0	0
<input checked="" type="checkbox"/>	4	R		PF	O1	X1	%O1	O2	O3	Total				
Dockery, Sean								15	3	0 / 0	-	0	0	0
<input checked="" type="checkbox"/>	5	R		PF	O1	X1	%O1	O2	O3	Total				
Nelson, DeMarcus								21	2	2 / 4	50%	3	0	8
<input checked="" type="checkbox"/>	6	R		PF	O1	X1	%O1	O2	O3	Total				
Williams, Shelden								23	5	9 / 10	90%	5	0	19
<input checked="" type="checkbox"/>	7	R		PF	O1	X1	%O1	O2	O3	Total				
Love, Reggie								30	4	0 / 0	-	0	0	0
<input checked="" type="checkbox"/>	8	R		PF	O1	X1	%O1	O2	O3	Total				
Perkins, Ross								40	0	0 / 0	-	0	0	0
<input checked="" type="checkbox"/>	9	R		PF	O1	X1	%O1	O2	O3	Total				
Davidson, Patrick								41	0	0 / 0	-	0	0	0
<input checked="" type="checkbox"/>	10	R		PF	O1	X1	%O1	O2	O3	Total				
Randolph, Shavlik								42	3	0 / 2	0%	0	0	0
<input checked="" type="checkbox"/>	11	R		PF	O1	X1	%O1	O2	O3	Total				
Pagliuca, Joe								45	0	0 / 0	-	0	0	0
<input checked="" type="checkbox"/>	12	R		PF	O1	X1	%O1	O2	O3	Total				

2

Period

78

MSU

68

Duke

19 / 23

83%

MSU

17 / 24

71%

Duke

13 PF

MSU

12 PF

Duke

Scoring Runs

Open

Exit

Form View

NUM

Play Stats - [frmSTATEPlays : Form]

File Edit Insert Records Window Help Type a question for help

MSU vs Purdue

All By Series, Set
Print Show Print Reports

1/71

E O
QSO
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CEH
MOP
ST
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OB
S S

No Series	No Set
Break	Blitz
Break	Break
Early Offense	Carolina
Early Offense	Early Post
Early Offense	Reversal
Early Offense	Rub
ZZZ Early Offens	ZZZ EO 1
ZZZ Early Offens	ZZZ EO 2
ZZZ Early Offens	ZZZ EO 3

Aerts
Ager
Brown
Davis
Gray
Hamo
Ibok
Maurice
Naymick
Neitzel
Rowley
Suton
Trannon
Walton

O2

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O2
O3
O2F
O3F
X2
X3
X2F
X3F
O1
X1
FF
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STOP

Real Time Play Stats



Spartan Basketball Plus/Minus - Spartan Basketball Plus/Minus
Home

Period
Michigan State Spartans Men's Basketball
Time

2
Illinois
0:00

Start the Clock

Player Roster
Assign Player to Position

1	1	Lucas	1	2	3	4	5
2	34	Lucious	1	2	3	4	5
3			1	2	3	4	5
4	2	Morgan	1	2	3	4	5
5	3	Allen	1	2	3	4	5
6	13	Thornton	1	2	3	4	5
7	15	Summers	1	2	3	4	5
8	22	Dahlman	1	2	3	4	5
9			1	2	3	4	5
10	10	Roe	1	2	3	4	5
11	23	Green	1	2	3	4	5
12	40	Herzog	1	2	3	4	5
13	41	Sherman	1	2	3	4	5
14	50	Nix	1	2	3	4	5
15			1	2	3	4	5
16			1	2	3	4	5
17	20	Kebler	1	2	3	4	5
18	25	Crandell	1	2	3	4	5

Players in Positions

1	20	Kebler
2	13	Thornton
3	22	Dahlman
4	25	Crandell
5	40	Herzog

Scoring

Michigan State

73

01 02 03 ↶

Start the Clock

Illinois

63

01 02 03 ↶

Start the Clock

Exit
Open Game
View Report
Reset Positions
Begin the Period
Load Roster

Form View

Plus/Minus



Risks and Prototypes

✓ Risk

✓ Prototypes

What's ahead?

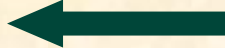
(1 of 3)

- All-Hands Meetings
 - ~~M, 01/11: Capstone Overview~~
 - ~~W, 01/13: Project Plan~~
 - ~~M, 01/18: (Martin Luther King Day, No Meeting)~~
 - ~~W, 01/20: Risks and Prototypes~~
 - M, 01/25: Status Report Presentations
 - W, 01/27: Schedule and Teamwork
 - M, 02/01: Team Project Plan Presentations
 - W, 02/03: Team Project Plan Presentations
 - M, 02/08: Team Project Plan Presentations
 - W, 02/10: Team Project Plan Presentations



What's ahead?

(2 of 3)

- Team Status Report Presentations
 - [PowerPoint Template](#)
 - Due 4:00 a.m., Monday, January 25
 - 5 Days  Panic!
 - Email to Dr. D.
 - Subject: Team <Company Name>: Status Report
Subject: Team Auto-Owners: Status Report
 - Attachment: team-<company-name>-status-report-presentation.ppt
Attachment: team-urban-science-status-report-presentation.ppt
- Dr. D. Will Combine Into Single PowerPoint
 - To Speed Things Up During Meeting
 - Do NOT Modify Master Slide
 - Must Use Windows Version of Microsoft Office
- Each Team Presents
 - Using Dr. D.'s Laptop
 - At Most 5 Minutes (Rehearse Timing)
 - Single or Multiple Presenters (Your Choice)



What's ahead?

(3 of 3)

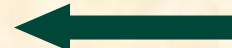
- Project Plan Presentations

- PowerPoint Template

- Download Now
 - Read the Read Me Slide (Over and Over and Over...)

- Submission

- Both Project Plan Document and PowerPoint Slide Deck
 - Due 4:00 a.m., Monday, February 1
 - See Submission Instructions in Template

 Panic!

- Presenting

- 3 Teams Per Meeting Over 4 Meetings
 - Schedule Posted Sunday Evening
 - Strict 15 Minute Time Limit
 - Use Team Member Laptop
 - ❖ Bring Power Cord
 - ❖ Test In Meeting Room (in Advance)
 - Rehearse
 - 5% of Final Grade
 - Business Casual Dress

- Formal Team Photos

- Immediately Following Meeting
 - In Capstone Lab

- Schedule Conflicts

- Only for Interview Trips
 - Notify Dr. D. Well In Advance

