Project Name

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Introduction

According to the 2014 Traveler's Road to Decision (Ipsos MediaCT, 2014), a study conducted by Google and Ipsos MediaCT, 80% of people use the internet as their top source for both leisure and business travel planning. The marketplace is expanding, yet the booking experience provided by airlines is still extremely outdated. Independent online travel agencies like Travelocity, Priceline and Expedia continue to excel in effectiveness of their websites (J.D. POWER, 2014). Compared to leisure travellers, business travellers are more likely to book from airline sites. Moreover, the influence of loyalty programs is declining (Ipsos MediaCT, 2014).

Product Description

In 2012, United merged their web platform to continental.com. Since the merge, people have been crying for a redesign. In early 2015, United launched a beta site to a selected group of customers. Even with huge improvements in functionality and visual design, there is still an opportunity to evaluate the usability of the new design using metrics based on: information architecture, interaction design and interface design.

User Profiling

United Airlines, Inc., is the world's largest airline when measured by number of destinations served. United serves 58 countries and has 362 destinations around the world. United Airlines operates nine airline hubs, handling 13.4 million passengers in 2014 (United Corporate Fact Sheet, 2014). For the purpose of this report, we generalized its large customer base and created two personas: Mike, the casual traveller without membership and Jen, the business traveller with membership.

Persona 1: Mike, the casual traveller without membership

Mike S. and his family of four are planning to go on a trip to Los Angeles, CA. His kids are very excited to go to Disneyland for the first time. He wants the best possible price and needs to make sure the trip is comfortable and accommodating for his two young kids.



Mike S. Age: 32 year-old Lives: San Francisco, CA Works: HR Manager Family: wife, 2 young kids

Quote:

"Making sure my family is safe and comfortable is my first priority. Finding the best price possible is also very important to me."

Goal:

To find and book a round trip flight that is cheap and comfortable for his family of four.

What he cares about:

- Best possible price

Concerns:

- A comfortable trip for his family
- Getting seats together because he's travelling with kids.

Persona 2: Jen, the business traveller with membership

Jen C. works as the marketing director in a big enterprise. She is planning for a business trip to Bangalore, India. She has a very busy work schedule, so flexibility and comfort are her first concerns. She is less sensitive about price and wants to take advantage of her United MileagePlus award program.



Jen C. Age: 45 year-old Lives: San Francisco, CA Works: Marketing Director Family: husband, 1 teenager

Quote:

"I want my trip to be comfortable and accommodative of my work schedule. — Jen"

Goals

To find and book a round trip flight for her business trip.

What he cares about:

- Flexibility
- Speed
- Simplicity

Concerns:

- Seat with more leg room

Usability Metrics

The interface was evaluated on the following categories. Within each category, tasks and features were assayed using the following established quantitative and qualitative usability metrics.

Quantitative Metrics

- Completion Rates
- Task Time
- Task Level Satisfaction
- Number of Errors occurred
- Web-page response time

Qualitative Metrics

- 1. Effectiveness of content presentation
 - a. Consistency in language used, typography, iconography and color.
 - b. Grouping of content based on gestalt principle, proximity compatibility principle.
 - c. Spacing of buttons, major components based on Fitts' Law.

2. Effectiveness of helping users achieve their goals

- a. Intuitive interface design with more positive affordances.
- b. The design of workflow and layout of interface maps to user's mental model.
- c. Ability to recognize over recalling information.

3. Efficient information access

- a. Easy access of information through cross pollination.
- b. Ability to make correct decisions more efficiently based on Hick-Hyman Law

4. Ease of error recovery

a. Effectiveness of status, warning and error message using Shneiderman's guidelines.

Tools and Techniques

Screenshotting and image generation	Snagit, Sketch 3, Photoshop
Web-page response time	Gtmetrix
Font size measurement	CSS property
Time to complete task	Smart phone timer

Table 1: Tools and techniques used in analysis

Usability Evaluation Summary

Unreliable system

During the usability test, it was observed that the system breaks down at several times. Since no clear instructions are provided on error recovery, the participants are forced to start over or bail. This leads to a direct loss in revenue. There are also price inconsistencies within search results. The cheapest fare available in the multi-date calendar is not shown on the search results for that day. This leads to user frustration and creates distrust. Moreover, the system sets the users up for failure by leading them through the booking process even with insufficient miles. It also fails to provide the most viable payment option based on booking context. Rather, the system creates confusion by warning the users not to use unavailable payment options. User discontent at this stage may prompt users to pull out from the process.

Users need better instructions to carry on their tasks

The language of messages and alerts are ambiguous and inconsistent. There are no clear instructions to help users to carry on the task or recover from an error. The user often overlooks crucial information because both messages and alerts use similar icons.

Navigation and text links do not provide adequate affordance

The participants had trouble recognizing what is clickable throughout the pages. The users are forced to resort to trial and error method by hovering over the text to see if anything appears. This significantly increases time spent in completing a task and may result in higher bounce rates.

Inconsistency in visual design

Consistency in interaction patterns and visual design of the system can be advanced. Spatial location of crucial features like calendar varies from page to page. Colors used to indicate flight options for reward travel on the calendar are different from the colors in search results. Labeling is very confusing and difficult to understand while scanning. The difference between "Economy (lowest)" and "First (lowest)" is ambiguous. The layout design also violates proximity compatibility principle by grouping non related items together (search grouped with personal account information) and displays correlated information at different places (date and time of flight within details section). Typography problems (small fonts and tight leading), spacing and alignment issues are also very common.

Interface Evaluation

Features

United's website is incredibly feature rich. The five main features highlighted on the homepage include book travel (Flight, Hotel, Car, Cruise Vacation), sign in to MileagePlus, check flight status, check-in, and manage tips. Since booking a flight is the most used and most important feature for an airline website, the booking process and its capabilities will be deeply examined and analyzed.

Tasks: Booking a Domestic Flight for a Family of four

Mike wants to book a domestic flight for his family of four to Los Angeles. Mike begins to fill in his search criteria. It is unclear if he's selecting the departure or returning date. He can't tell where the drop down is opening from, and the date indicators for both dates on the calendar look the same (Figure 1.1) When Mike clicks on the dropdown menu to add more travelers, he is overwhelmed with the options. It takes him longer to scan and make a correct selection (Figure 1.2).

November 2015 December 2015 > S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T M T T T S S M T M T T Z S M T T T T Z S M T <th colspan="6">Nov 26, 2015</th> <th>No</th> <th>/ 29</th> <th>, 201</th> <th>5</th> <th></th> <th></th> <th></th>	Nov 26, 2015						No	/ 29	, 201	5					
S M T W T F S S M T W T F S 1 2 3 4 5 6 7 1 2 3 4 5 8 9 10 11 12 13 14 6 7 8 9 10 11 12 15 16 17 18 19 20 21 13 14 15 16 17 18 19	< November 2015							D	ecen	nbe	r 20	15	>		
1 2 3 4 5 6 7 1 2 3 4 5 8 9 10 11 12 13 14 6 7 8 9 10 11 12 15 16 17 18 19 20 21 13 14 15 16 17 18 19	s	М	м	т	w	т	F	S	S	М	т	W	т	F	S
8 9 10 11 12 13 14 6 7 8 9 10 11 12 15 16 17 18 19 20 21 13 14 15 16 17 18 19	1	2	2	3	4	5	6	7			1	2	3	4	5
15 16 17 18 19 20 21 13 14 15 16 17 18 19	8	9	9	10	11	12	13	14	6	7	8	9	10	11	12
	15	16	16	17	18	19	20	21	13	14	15	16	17	18	19
22 23 24 25 26 27 28 20 21 22 23 24 25 26	22	23	23	24	25	26	27	28	20	21	22	23	24	25	26
29 30 27 28 29 30 31	29	30	30			_			27	28	29	30	31		
	-	A								0	iu	~		45	



Figure 1.1: booking - selecting travel dates

Figure 1.2: booking - selecting types of travellers

Mike clicks search and notices an alert at the top. He does not know what went wrong - wrong airport? No flights for those dates? (Figure 1.3) He clicks the back button and changes the departure location from San Jose to San Francisco to see if that will solve the problem. Luckily it solves the problem.

(!)	We are unable to process your request. Please see the message below for details. No flight schedule could be retrieved using your search criteria. Please use the form below to start a new search.
-----	--

Figure 1.3: booking - alerts

Mike uses the dropdown menu on the left side to filter search results(figure 1.4). However, Mike doesn't know what each option means because nothing is labeled. Mike clicks around and notices Economy Lowest is selected by default. He accidentally finds that he can sort prices by clicking the blue labels (Figure 1.5). However, only the fares under that column change. The category is still labeled with the word "lowest" even after he sorts price from highest to lowest. He clicks the question mark at the corner to see what each label means, but he is more confused after reading the description (Figure 1.5).

l of 21 flights from \$1	05	Find the lowest United fare	online at united.com	
Economy (lowest) conomy (lowest) conomy (flexible)	\sim	Economy (lowest)	Economy (flexible)	First (lowest)
st (lowest) nomy (lowest)		Our lowest available fare.	Refundable fare; cancellation and change fees may apply.	Our lowest available fare
Nonstop	\$105			

Figure 1.4: booking - sort prices

Figure 1.5: booking - filtering

Mike also finds that the chart at the top which lists the prices of fares across dates states that today's cheapest fare is \$86, but in the search result, the cheapest flights is \$148 (Figure 1.6). Mike is second guessing his choice of booking on united.com.

Economy (Towest)	Traveler > Seats > Payment
Set 11/28 Sun 11/29 Mon 11/29 Tue 12/1 Weed 12/2 (i) Fares are each-way, per p taxes and fees. Additional < \$127 \$190 \$86 \$83 \$83 >	SFO - LAX LAX - SFO UA222 UA731
Expanded view List view Economy Depart Arrive Stops Duration	① Reaccomodation Pending - retry later ErrCode:FS38
8:02 a.m. 9:35 a.m. Nonstop 1h 33m Details Seats \$\$148	Thu, Nov 26, 2015 San Francisco, CA, US (SFO) to Los Angeles, CA, US 1 of 2 flights (LAX)
9:53 a.m. 11:44 a.m. Nonstop 1h 51m Details Seats \$148	Next flight

Figure 1.6: booking - search results



After filtering through a huge amount of information, Mike selects desired flights and is ready to purchase. After filling in all passenger information for his family of four, an error occurs. The error message neither explains what went wrong nor does it give detail on how to recover (Figure 1.7). Mike cannot save the flight nor his family's passenger information. He is forced to abandon the progress and start over later.

2. Booking an International Flight with Award Travel

Jen is a Marketing Director booking her business trip using miles. She quickly scans the homepage, fills in search criteria and selects "search for award travel" (Figure 2.1, label 1). Her dates are flexible but she can't find the flexible dates option. She eventually finds it wedged between the departure location and departure dates (Figure 2.1, label 2). After selecting it, the system changes Jen's travel dates to "October 2015 and 6 days," but Jen doesn't understand what "6 days" means (view Figure 2.1, label 3). Is it the trip duration or flexibility of day? She clicks search hoping that the answer will reveal itself.



Figure 2.1 - Book Award Travel

Jen sees two messages (Figure 2.2) at the top of the page with icons that look like alerts. She thinks that something went wrong with her search criteria. After reading them, she finds out they are instructions. However, neither of them successfully explain how the award calendar works (Figure 2.3).

(i) Please select your travel date from the calendar below	
Award Availability Calendar (Departure)	Hide calendar
(i) The calendar reflects all flight options. Use filters and/or sort by column headers to refine your results below.	

Figure 2.2 - Messages

Looking further down the page, Jen notices that her 6 day selection has now been switch to November 1st - November 7th. Jen now understands that the 6 days she selected on the previous screen were for the duration of her trip. Jen uses the legend, on the side of the calendar, to select a date that she'd like to travel (Figure 2.3). Green marks the dates available with saver award travel for economy, which is also indicated with yellow, and premium cabins, which is indicated by blue as well. Jen is very confused by the legend. It seems that green dates includes both yellow and blue dates, since there are no blue dates, she decides to try click on 17th of November, which is highlighted green.

November 2015	<		NO	V 23,	2015					DE	C 23, 2	2015		>
	S	Μ	т	W	Т	F	S	S	Μ	т	W	т	F	S
Saver Award Economy	1	2	3	4	5	6	7			1	2	3	4	5
Saver Award premium cabin Saver Award Economy & premium cabin	8	9	10	11	12	13	14	6	7	8	9	10	11	12
Standard Award may be available	15	16	17	18	19	20	21	13	14	15	16	17	18	19
	22	23	24	25	26	27	28	20	21	22	23	24	25	26
	29	30						27	28	29	30	31		

Figure 2.3 - award availability calendar

Jen has to comb through large amount of information, click around on the calendar and try to find the best deal. She finally decides to choose a flight that uses 90k first class saver miles because it is the best deal. Jen likes the fact that she can see what are the stops via this tooltip (Figure 2.4). Although she travels a lot, Jen does not know all the acronyms listed here.

Jen clicks open the flight detail information for her departing flight. She learns that only the SFO to Shanghai flight has wifi (Figure 2.5). She worries that something is wrong with the flight because there are so many alerts icons. Then she realizes that what she thought were alert messages, are actually information messages about the flight (Figure 2.5).

Unsatisfied and frustrated, Jen still decides to book. After she signs in with her MileagePlus information, she is taken to the summary page. Once again, she sees the alert icon at the top (Figure 2.6). At first, Jen thinks that's only a message. She notices the icon is red so she reads the message. It is infact an alert telling her that she does not have enough miles to book this flight. Unable to find a solution, Jen is not sure what to do next. Oddly, she still sees a reserve button even with insufficient miles. Unsure and even more frustrated, Jen closes the window and decides to book somewhere else.

Expanded v	iew	List vie	w			
Depart	SFO	PVG	DEL	вом ————————————————————————————————————	BLR	
Mon, Nov 23 1:30 p.m.	10:5	50 a.m.	3 stops	31h	50m	 Details
Operated By	Air India					
(i) Pleas	e note t	his flight	involves	a date cl	hange.	
Figure	2.4 -	toolt	ip: nui	nber d	of sto	ps



Total	265,000 miles + \$58.90	Remind	ler:
1 adult (18-64) Taxes and fees	265,000 miles \$58.90	Be sure to your eligib to save or ope comp	purchase your tickets with ole MileagePlus Credit Card checked bags for you and anion
Total	265,000 miles + \$58.90	one comp	
ip summary		🔗 Edit search	Reserve
Mon, Nov 23 W 1:30 p.m. → 9 an Francisco, CA, US (SFO) B	ed, Nov 25 120 a.M. angalore, IN (BLR)	2 Connections 30h 20m total	Reserve this trip We will hold this reservation unti midnight Fri, Sep 25, 2015 in Sar Francisco, CA, US (SFO).
i Please note this flight invol	ves a date change.		
FO to PVG UA 857 Boeing 74	7-400	중 ①	
VG to DEL AI 349 Boeing 78 perated By Air India.	7-8 Dreamliner	0	
EL to BLR AI 803 Boeing 78 operated By Air India.	3n 40m connection 7-8 Dreamliner	0	
		Revise flight Details	

Figure 2.6 - booking: trip summary

Comparative Study

7 individuals were tested, using the quantitative metrics, and asked to book a flight from San Francisco to Los Angeles for 2 adults and 2 children under 5 years old.







Completion Rates

All of the subjects were able to complete their booking with virginamerica.com and priceline.com. However, only 57% of the subjects were able to successfully complete the task on united.com. Two subjects bailed because there was no option to choose another flight without filling 4 passengers' information all over again.



Task Time On average

On average, subjects took almost twice as long to complete the same task using united.com. Note that the subject didn't have the option to choose seats for the passengers using Priceline, so the booking time will be longer than what's recorded because the user might have to choose seats during check-in.



Task Level Satisfaction

After performing the task, the subjects were asked to rate their satisfaction using a scale of 5, 1 being not satisfied at all, 5 being very satisfied. Not surprisingly, Virgin America was rated the highest. Subjects thought that booking the flight on virginamerica.com was easier. They felt that the pages on Priceline were too busy and booking on United was too much effort.

Number of Error occurred

The subjects made the most mistakes when they were booking on united.com.

Mistakes that occurred were:

- Selected a flight with unacceptable seat arrangement.
- Misread the departure time.

Slips that occurred were:

- Typed in the wrong date of birth
- Selected tickets for seniors instead of children

Web-page response time

According to the report generated by Gtmetrix, Priceline has the best overall performance. United.com (773KB) has a much smaller total page size than virginamerica.com (1.12MB). It still has the longest loading time (8.2 seconds), which is almost twice as long as virginamerica.com (3.9s).

Virgin America Interface Evaluation

A 2012 study by Airline Quality Rating (Bhattacharjee, N, 2013) rated Virgin America as the best and United as the worst airline on overall performance. While this report has already examined one end of the spectrum, the following section examines the other end.

Goal-based design that helps users to complete desired tasks.

Unlike many other airline websites, virginamerica.com takes a very goal-oriented approch. The first and only thing a user sees on the homepage is the option to book a flight. The system automatically detects the user's location and fills the departure location for them. Having a "smarter" system saves users time and effort and increase customer satisfaction.

				Traveler Alert:	Los Angeles <u>N</u>	<u>lore</u>						
- america	воок	CHECK IN	MANAGE	Deals Flying With Us	Where We Fly	Fees	Flight Status	Flight Alert	s	elevateo	Sign In	Sign Up
			Whe	ere would	l vou li	ike	to a	02				
			••••		youn		,	0.				
Guests	JLT		-	SAN FRANCIS	со		-	™ CITY			~	
									Be	st Fares Guarantee	ed online	
				SEARC	H FLIGHTS							

Figure 3.1: virginamerica.com home page

Effective Navigation

Navigation is consistently located on the top of every page - even during the booking process (figure 3.2). Secondary tasks like checking-in, managing bookings, and other tertiary tasks are located on navigation bar. Typography supports information hierarchy - more important menu items are bigger and emphasized.

÷	america	oct 16 SFO → 8:00am	LAX 9:20am	$LAX \rightarrow$	SFO	4 Gu	ests Ildren	Main Cabin	\$288.40 ~
			SI		JRNING FL	IGHT L/	AX - SFO		
ζ	THU, OCT 15 From \$130	FRI, OCT 16 From \$130	SAT	OCT 17 om \$63	SUN, OCT 1 From \$73	8	MON, OCT 19 From \$63	TUE, OCT 20 From \$63	WED, OCT 21 From \$63
All mandal fees, optio until purch	tory taxes and fees are included in the p nal services and other fees <u>bere</u> . Fares ase.	rices shown below. View bagg and availability are not guaran	age Iteed		I BI	EST FARES			PROMO CODE
<u>Best fa</u>	res guaranteed online Fare Del	tails					MAIN CABIN	MAIN CABIN SELECT Info	FIRST CLASS

Figure 3.2: booking - selecting returning flight

Clean visual design that helps the user to complete their task, and it has a unique personality.

Users repeatedly mentioned that they like the unique characteristics of this design. The interface uses very casual language. For example, using conversational language like "hey there", "nice name" for form verification makes form filling fun (figure 3.3). Research has shown that people perform better with a system that has anthropomorphic characteristics. There are other interesting features that add personality to the

design. Users are able to choose their own avatar (figure 3.4) and the system shows users their selected character along with the associated passenger's name. This feature is especially helpful when users are booking for a large party by helping them recognize information with visual clues. In addition, avatars are also used as an indicator of seat occupancy (figure 3.5). This reinforces user's' mental connection with their avatar and consistency of visual design.





Figure 3.4: booking select avatar



Figure 3.5: booking - selecting seat

Timely dialogic instructions and notifications provide great feedforward and transparency.

During the flight booking process, the system directs users through timely dialogic instructions and notifications. When users selects a flight, the top purple navigation bar turns into a loading message (figure 3.6). This message provides users with greater transparency on what's behind the system, and increases trust. Also, the dialogic instructions direct users through every step of the process and help in reducing their mental workload (figure 3.7).

Loading •••				o	ctober 16th-18tl	n, looks good.	
m → 3:45pm (sFo)	\$162	\$249	Mon	Tue	Wed	Thu \$ 228	Fri \$ 228
Figure 3.6: booking - loading the information			F	igure 3.7: k	oooking - se	electing trav	/el dates

Usability problems:



Figure 3.8: booking - selecting travel dates

Users can't type in their destination. Even though this is not a long scroll, but having the ability to type and narrow down selections might be a good feature to have.



Figure 3.9: booking - selecting travel dates

The positions of add and minus button are swapped. This is a violation of Fitts' Law. When a user opens the dropdown box- normally by clicking the triangle - it's closer for users to click the add button if it's on the right side. Also, this better matches with the conventional design paradigms reducing slips.

Suggested Usability Enhancements

- 1. Guide users through the process and tell them what to do when errors occur.
- 2. Redesign messages to be shorter, easier to understand and more conversational.
- 3. Improve information hierarchy and feature visibility. Don't hide important functions under tabs.
- 4. Present consistent information on flight availability and fare prices at all touch points.
- 5. Provide positive affordances for clickable content.
- 6. Clearly label all input fields and improve their nomenclature.
- 7. Add utilitarian features like 'Save flight', view multiple day fares for all classes.
- 8. Make the system smarter. Detect user's location, search history, mile balance and use it to cross pollinate information across pages.
- 9. Improve typography (especially leading) and iconography.

Conclusion

The redesigned united.com greatly improves the overall visual style. Compare to the old version, the new homepage is cleaner and more task-oriented. The booking process has some good functionalities. However, after analyzing the booking process and its usability, we found some issues that might make the website inaccessible and unusable. Here are some of our key takeaways:

- Building a reliable system should be the first priority.
- Using a product should not feel like a chore. Users are more forgiving if they enjoy doing a task.
- Users should always be able to correctly navigate through a website. There should be no information loss while moving from one step to another.
- The system should be transparent. Information presented to the user must be clear and consistent.

What did we learn from this project

Wendy Wu

This is my first time doing quantitative research. It's very interesting to see how people struggle in places that I didn't notice before and measure them using quantitative metrics. It's also very educational to learn to combine findings and report them selectively.

Sahiba Johar

I learnt that it's incredibly important to put a product in front of users to see if they understand what is designed and can achieve the intended goals. Just from using the United website a few times, I learnt that it's incredibly difficult to book a flight. If booking a flight is United's main goal and users can't even get through the process smoothly, then it's vital that they revisit their design decisions.

Nishtha Mehrotra

Analysing united.com made me remember the age old adage- "form follows function." If the system does not work, then no matter how good the visual design is, users will be left frustrated. Listening to users and testing designs early and often might significantly reduce errors. Working on the report also reinforced the value of presenting information succinctly.

Reference:

Bhattacharjee, N. (2013, April 8). Virgin America best U.S. airline, United worst: Study. . Retrieved October 7, 2015, from http://www.reuters.com/article/2013/04/08/us-usa-airlines-qualityreport-idUSBRE9370I6 20130408

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Appendix

Contextual Interview results

Data generated based on contextual interview sessions with 7 subjects.

Quantitative measurements	United Airlines Priceline		Virgin America
Completion Rates	57%	100%	100%
Task Time	9:16:31	4:29:10	3:56:05
Task Level Satisfaction	1.71	3.14	4.57
Number of Error occurred	3	0.86	0.29
Homepage load time	8.0s	3.9s	3.0s
Homepage total size	773KB	1.12MB	474KB

Table 1.1: quantitative research results

Response time compare report generated by Gtmetrix



Report generated on Fri, Oct 2, 2015, 5:12 PM -0700, server located in Dallas, USA

Usability Evaluation Summary

High Priority. - problems that need to be addressed immediately.Medium Priority - problems that need to be addressed soon.Low Priority - problems that can be addressed when resources become available.

	Home Page	Search Result	Booking Page	Other pages
	Menu options within Book Travel are unevenly spaced, incorrectly aligned and do not have low legibility due to inadequate contrast.	All information messages are differently styled.		Checked baggage service page uses style sheets from the old website creating visual inconsistency
		If list view is a default option, it should be positioned on left and expanded view on right.		
Visual Design		Similar icons used for warning and information messages.		
		Fare comparison chart for each class has conflicting visual hierarchy to reading pattern of target audience.		
		The positioning of search criteria changes from bottom (in departure) to top (in return flights).		
Typography	Poor leading and inaccurate visual hierarchy on home page.	Fare terms and conditions are displayed in small font size resulting in poor readability.		Advanced Search Page: Tight leading for left labels in advanced search hampers readability.
				Checked Baggage

				Service Page: Long paragraphs of text in checked baggage service page translate into poor readability and increased cognitive load.
				Information is not chunked and labelled.
Label Design	Input fields for Book Travel not Iabelled	The key for flight seating diagram is not comprehensive.		
		Search filters on left are not labelled.		
		Ambiguous labels for each class. What does 'lowest' imply?		
		Heading showing arrival and departure cities is not displayed at all places.		
Gestalt Principle		Edit search option applies to both 'departure' and 'return' search. However, it is grouped with just one part of the journey.		In payment page, the radio button for credit card option is lost among similar styled warning icons.
Proximity Compatibility Principle		Search filter on right can be used to sort fares by class which are displayed on the right- with no apparent connection	Personal account information is incorrectly grouped with search field	

		between the two.		
		Dates and times in flight details are listed in separate locations.	The total for the trip is displayed with the option to Sign In which in turn is grouped with Search- neither is related to the other.	
Information consistency	While economy is given as a separate option, Business and first class are clubbed together.	Meal availability is listed for certain classes, and not for others.		
Fitt's Law			Action button is at the far right corner, and on the first page fold. It should follow as user scrolls down the page.	
Affordances	Menu options don't seem clickable.	When viewing flight seats diagram, left and right navigation arrow should be disabled when the diagram is fully panned left/right.	"Revise flight", "details" and "duration" use similarity (are all shown in blue text and same font size) implying consistent actions when any is linked. However, "details" option expands menu, "time" opens a dialog box while "revise" takes the user to advance search page and forces her to restart her search.	Sign In dialog Box: links are not distinguishable from text.
	Within "Book travel", when a calendar is	When all results can be displayed on a single page,	Total miles displayed in green even when a user	

	opened, it is not clear if it refers to departure or return date. Date selection indicator look similar too.	disabled prev/next buttons provide negative affordance. Fare type comparison seems to be an actionable link but is merely an informative label. Sort functions are designed as column headings.	does not have enough miles in her account to book the flight.	
Mapping	Icon design to expand each task does not map to functionality.	Color coding for calendar does not match column heading colors for classes.		
Recognition over Recall		System displays only acronyms of airports.		
		As a user scrolls down a page, only flight times are shown- not dates. When she navigates between multiple tabs, she either has to remember which tab corresponds to which date or scroll up to view dates.		
Visibility	My dates are flexible is not easily found.			

Missing features		A flight cannot be saved for future reference.		
Cross Pollination		Discrepancy between awards shown available in calendar vs awards available in search results.	The option to "Reserve" should not be presented when a user does not have enough miles to book a selected flight.	Travel Calendar : Travel duration changed to calendar dates.
		Multi-day table on top shows a flight available for cheaper price but, there are no such flights available in search results.	The system does not automatically select the viable payment option. It shows ambiguous messages of unavailable options.	Search fields populated with incorrect search criteria that produces an error message.
Hick Hyman's Law				Hide Calendar message is unnecessary.
Forced constraints	When dates are flexible, travel duration options are constrained. Cannot select a trip of (say) 75 days.	Fares for more dates can be viewed only for "Economy (lowest)."		
		Flights for another day cannot be opened in a new tab.		
Shneiderman's guidelines for error messages	Vague error message for not failure to execute a search. No specific direction on ways to rectify error provided.	When no flights match search filters, there is no error message displayed.	Vague error message when a user does not have enough miles. No context specific help provided.	
			The system does	

		not allow a user to book seats for one half of the trip. The error message neither explains what went wrong nor does it give details on how to recover from the error.	
		Information message warns that not all payment options are available but does not say how can they be made available.	
Information/ Warning message	Confusing information message stating fare rules.		Travel Calendar: Information messages stating the obvious.
	Redundant information message showing arrival departure dates of connecting flights		
	Dialog box explaining each fare class has ambiguous language.		