

Item #	User Needs & Intended Uses	Design Inputs	Acceptance Criteria	Design Output	Essential Design Output	Design Verification (Example)	Design Validation (Example)
1	Album art must be on display and clearly visible.	(1) Display casing must not obstruct album art.	(1) Must be able to see at least 20% of cover to recognize what the album is during selection process	Clear acrylic will be used so the albums will be visible from the sides of the product.	<input checked="" type="checkbox"/>	The album art was visible from all angles and every album could be at least partially seen.	User could stand anywhere in the room and still see the albums and their cover art
2	The product must protect the albums and album art.	(1) Albums must be shielded from falling objects.	(1) Must withstand the impact of a two pound textbook being dropped from 2 feet above.	Brass rods along the sides and top will add stability and strength to the acrylic sides.	<input checked="" type="checkbox"/>	The brass rods stopped any large objects from hitting the records when objects were dropped on the product.	Product survived years of frequent use with no damage to product or records.
		(2) Casing must protect records from user bumps and falls.	(2) Must withstand the impact from falling 4 feet on to a hardwood floor	Brass rods along the sides and top will add stability and strength to the acrylic sides.	<input checked="" type="checkbox"/>	The acrylic sides withstood a fall from 4 feet and the records and product remained intact.	Product survived years of frequent use with no damage to product or records.
3	The albums must be easily accessible to play on a record player.	(1) The user should be able to access records without having to open or unhinge anything.	(1) There must be almost no force required to pull the record out of the holder. (Minimal resistance)	The slots in the acrylic rim are much wider than the width of the albums so they can be slid in and out with ease.	<input checked="" type="checkbox"/>	The albums produced almost no resistance when being pulled out of the slots in the product.	User is satisfied with with record accessibility.
4	The product must use space efficiently.	(1a) If the case cannot accommodate many records, it must be compact.	(1) Must accommodate 5 records per square foot of ground space.	N/A for this product.	<input checked="" type="checkbox"/>	N/A for this product.	N/A for this product.
		(1b) If the case is large, it must accommodate a large number of records. The product must act as a space-saving measure.	(1) Must accommodate 5 records per square foot of ground space.	More than 15 album slots will be included in the design to account for its larger size.	<input checked="" type="checkbox"/>	This product exceeds the 5 records per sq. foot of space criterion. (17 records / 3 sq ft)	User is able to save space using our product, as an alternative to conventional display methods.
5	Product should be aesthetically pleasing	(1a) Ideally, product style should be neutral and minimalist.	(1a) A random sample of 20 record-owners rate our product above a 7.5/10 in overall attractiveness and compatibility with retro aesthetic.	A combination of clear acrylic and brass rods were used to give a futuristic look that stayed within the bounds of the functional user needs.	<input type="checkbox"/>	From the random sample, we recieved a overall score of a 7.7/10 in overall attractiveness.	(1b) Alternatively, or ideally, product style could be neutral and minimalist.
		(1b) Product could alternatively be designed to work aesthetically with the retro design of record players and album art.	(1b) Our product does not contribute to the appearance of the records (is transparent or minimally visible).	N/A for this product.	<input type="checkbox"/>	N/A for this product.	N/A for this product.
6	Product could accommodate multiple records	(1) Product would need to have some mechanism for holding multiple records in an organised fashion.	(1) Could hold more than one record	The design has multiple slots that can hold up to 17 records.	<input type="checkbox"/>	Display case successfully holds 17 records	No records fall out of the display case unless there is an external force
7	Records could spin (for decorative purposes).	(1) Product would need to include a motor or group of motors.	(1 – 3) Records could be turned on, spin for fifteen minutes, and turned off.	A motor would've used to spin the record, not the album, and this function can be turned on and off. Not incorporated into the final design.	<input type="checkbox"/>	N/A for this product	N/A for this product.
		(2) An electronic control system would be required.		A switch would have been used. Not in final design.	<input type="checkbox"/>		N/A for this product.
		(4) A power source would be required.		A battery or power cord would have been used. Not in final design.	<input type="checkbox"/>		N/A for this product
7.1	Display case could light up (for decorative purposes).	(1) Lights would be required.	(1 – 3) Album art is clearly visible 10 feet away in a dark room. Lights may be turned on and off and will stay on for fifteen minutes.	LED strips will be installed on the lower part of the product along with battery pack. On/off button will be used.	<input type="checkbox"/>	Lights function normally and album art is clearly visible.	Users are satisfied with their vinyl case even in low-light social situations and find that lights both improve the aesthetic of the casing and maintain album art visibility.
		(2) A power source would be required.		A battery or power cord would have been used. Not in final design.	<input type="checkbox"/>		
		(3) A control system would be required.		A switch would have been used. Not in final design.	<input type="checkbox"/>		