Tutorial 6 Screen Shots

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Listener Sponsored DLR Radio

DLR Nightly Schedule

DLR airs listener-supported public radio in Bismarck, North Dakota from 5:00 a.m. to 10:30 p.m. You can Listen Live to streaming audio of our broadcast. Please refer below for our current nightly schedule.

Time	Mon	Tue	Wed	Thu	Fri	Sat	Sun
6:00 PM	National News						
6:30 PM	World News						
7:00 PM	Opera Fest	Radio U	Science Week	The Living World	Word Play	Agri-Week	Folk Fest
7:30 PM					Brain Stew	Bismarck Forum	
8:00 PM	The Classical Music Connection				Old Time Radio	Saturday Nite Jazz	The Indie Connection
8:30 PM					The Inner Mind		
9:00 PM					Open Mike Nite		
9:30 PM							
10:00 PM	World News Feed						

DLR ends its broadcast day at 10:30 p.m.

All Times Central

On the Air Now

Folk Fest

> Featuring the best of traditional and modern folk music

Coming Up on DLR

April 11-14
The Classical Music Connection

> Peter Thiesen shares his eclectic selection from the world of classical music

April 11
Opera Fest

> Excerpts from *Turandot* by Giacomo Puccini

April 12
Radio U

> SF author Karen Graves reads selections from her latest work, *Hellion of Troy*

April 13
Science Week

> Prof. Thomas Glass from UND discusses *String Theory and Spooky Action at a Distance*

April 14
The Living World

> Tim Unger explores the economic impact of *driverless cars* and presents the latest in eco-news

The Living World

April 14

Join host Tim Unger for this week's edition of *The Living World* where we discuss the future and economic impact of *autonomous vehicles*, otherwise known as *driverless cars*.

Rise of the Driverless Car and How It Will Impact You

Your world is about to change with widespread adoption of driverless cars. Driverless cars or autonomous vehicles that interact with their surroundings with radar, GPS, proximity sensors, and computer image enhancement. This information is fed into a control system that uses it to plot navigation paths and to respond to obstacles and road directions. A driverless car is capable of updating its status based on changing conditions. Driverless cars should be autonomous even when entering uncharted regions.

In the United States, the National Highway Traffic Safety Administration (NHTSA) has proposed the following levels of autonomy for motorized vehicles:

Level 0 The driver completely controls the vehicle at all times.

Level 1 Individual vehicle controls are automated, such as electronic stability control or automatic braking.

Level 2 At least two controls can be automated in unison, such as adaptive cruise control in combination with lane keeping.

Level 3 The driver can fully cede control of all safety-critical functions in certain conditions. The car senses when conditions require the driver to retake control and provides a "sufficiently comfortable transition time" for the driver to do so.

Level 4 The vehicle performs all safety-critical functions for the entire trip, with the driver not expected to control the vehicle at any time. Because this vehicle would control all functions from start to stop, including all parking functions, it could include unoccupied cars.

Currently, we are at Level 2 with many vehicles able to provide automated safety systems, such as automatic braking in response to input from collision sensors.

When Does Full Autonomy Arrive?

Level 4 autonomous vehicles are arriving and they're arriving quickly. The obstacles to adoption of a driverless economy are legal and technical. The United States traffic code does not prohibit autonomous vehicles, but it also does not specifically address them. Several states, including Nevada, Florida, California, and Michigan, have enacted traffic rules specifically tailored to driverless cars and more states are in the processing of enacting such legislation.

One area of legal entanglement is the laws against distracted driving. Google specifically requested an exemption to permit occupants to send text messages while sitting behind the wheel of an autonomous vehicle. Other similar regulations will need to be addressed as driverless cars move from the testing stage into general use.

Other countries have permitted the testing of autonomous vehicles on public roads. The United Kingdom enacted a testing phase in 2013, followed shortly by France in 2014.

Driverless cars have driven through San Francisco's Lombard Street, navigating its steep hairpin turns, and city traffic. The testing vehicles provide an override to allow a human driver to take control of the car. By August 2012, testers announced that they have driven over 300,000 miles accident-free. By April 2014, autonomous vehicles have logged nearly 700,000 miles. As of June 2015, driverless cars have been involved in 12 minor accidents on public roads. Eight of these accidents involved being rear-ended, two in which the vehicle was side-swiped by another driver, one of which involved another driver rolling through a stop sign, and one where the car was being driven manually.

Driverless cars have not yet been tested in heavy rain or snow due to safety concerns. Nor have they been tested in areas with temporary traffic lights or complex unmapped intersections. The technical issues are daunting. An autonomous vehicle has difficulty with potholes, roadside trash and debris, and interpreting unexpected signals, such as a police car signaling the vehicle to pull over.

Experts predict that autonomous vehicles will gradually be introduced into the market with the following anticipated benchmarks:

2017 U.S. Department of Transportation hopes to publish a rule mandating vehicle-to-vehicle (V2V) communication by an unspecified future date.

2018 Tesla Motors expects to produce a version of fully self-driving cars, where the driver can fall asleep, though the actuality of marketing such a vehicle will depend on the economic and legal climate.

2020 GM, Mercedes-Benz, Audi, Nissan, BMW, Renault, Tesla, and Google all expect to sell vehicles that can drive themselves at least part of the time.

2024 Jaguar expects to release an autonomous car.

2025 Daimler and Ford expect to release autonomous vehicles on the market.

2035 Information Handling Services (IHS) Automotive Report projects that most self-driving vehicles will be operated completely independently from a human occupant's control.

2040 Experts at the Institute of Electrical and Electronics Engineers (IEEE) estimate that up to 75% of all vehicles will be autonomous.

Clearly, the introduction and widespread adoption of autonomous vehicles will have enormous repercussions.

The Impact of Driverless Cars

While it appears at first glance that a driverless car will be more dangerous than a manually driven vehicle, it has been estimated that once we switch to a driverless economy, we will see a 90% reduction in crashes, saving nearly 30,000 lives and preventing 2.12 million injuries annually. Indeed, the whole design of the car will change. Currently, a car is designed around the needs of the driver, but, when all in the car are passengers, the interior space will be designed more economically and efficiently.

Beyond redesigning the car, we will also redesign our system of roads and traffic control. This could mean loss of lots of road signs, lane markers, and street lights. Cars can merge and change lanes more efficiently and speed limits can be safely raised. Traffic control planners can redesign traffic flow to cooperative patterns that will increase safety and reduce travel time (and road rage!)

But this innovation is not without cost. We are a driving-based economy. Truckers, taxis, car rentals, and car servicing are all based directly or indirectly on manually-driven vehicles. The Bureau of Labor Statistics lists that 884,000 people are employed in motor vehicles and parts manufacturing, and an additional 3.02 million in dealer and maintenance network. Truck, bus, delivery, and taxi drivers account for nearly 6 million professional driving jobs. That is 10 million jobs immediately at risk with a move to a driverless economy and that does not count ancillary industries, such as roadside diners and motels, which will also be affected when we need to drive less often.

On the other hand, research shows that currently manually-driven cars are driven just 4% of the time at an average cost of $9000 per year in maintenance and upkeep. Thus, an economy in which autonomous vehicles offered through car-sharing services like Uber replace self-owned and self-driven cars, promises an enormous amount of savings to the individual. It is estimated that despite the economic upheaval, eliminating the need for car ownership will yield over $1 trillion in additional disposable income.

These are exciting times. While the full economic and social impact of a driverless economy are still not fully grasped, the driverless economy once fully implemented will dwarf the impact of the automobile, airplane, personal computer, and cell phone in how it changes our lives and work.

Now we just need to create a driverless car that can fly and I'm all set.

Listener DLR Sponsored Radio

DLR Morning Schedule

DLR airs listener-supported public radio in Bismarck, North Dakota from 5:00 a.m. to 10:30 p.m.

You can Listen Live to streaming audio of our broadcast or download programs from our Podcast.

Please refer below for our current morning schedule.

Time	Mon	Tue	Wed	Thu	Fri	Sat	Sun
5:00	Dawn Air					Dawn Air Weekends	Sunday Magazine
5:30							
6:00							Weekend Reflections
6:30							
7:00	Local News					Weekend Wrap	Radio U
7:30	World News Feed						
8:00	Classical Roots					What Can You Say?	University on the Air
8:30							
9:00							
9:30						Animal Talk	
10:00	Symphony City						Word Play
10:30							Brain Stew
11:00						Opera Live from the East Coast	The Inner Mind
11:30							Grammar Rules!!
12:00	Book Club						Weekend Wrap

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select a plan	Starter	Prime	Prime Plus	Ultra
	$19.95 per month	$29.95 per month	$49.95 per month	$69.95 per month
Download Speed	3 Mbps	15 Mbps	25 Mbps	50 Mbps
Upload Speed	512 Kbps	6 Mbps	10 Mbps	20 Mbps
Cloud Storage	2 GB	5 GB	15 GB	40 GB
E-mail Accounts	2 Accounts	3 Accounts	5 Accounts	10 Accounts
24/7 Support	Yes	Yes	Yes	Yes
Summary	Just the speed you need to send emails, download map directions, and search the Internet for restaurant reviews.	A great speed at a great price for the family: kids can play games, adults can pay bills, and everyone can surf at the same time.	Super speeds for multiple tasks that require more broadband capacity; ideal for gamers who need fast response times.	Perfect for a small business running multiple media streams, demanding reduced lag time and fast data delivery.

The Japanese puzzle factory

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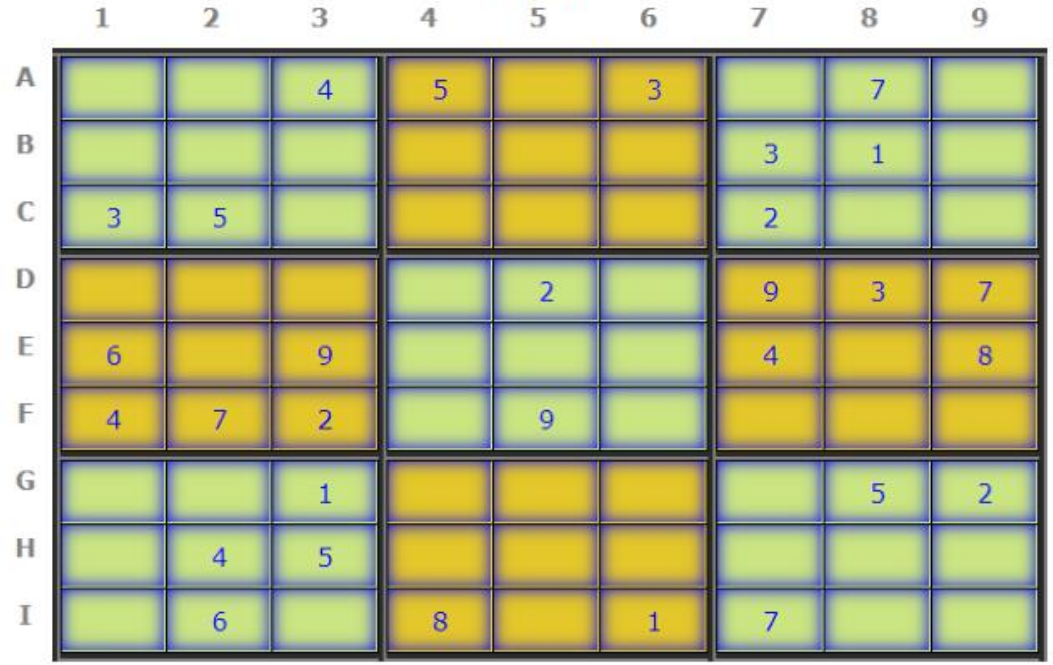
Sudoku



To Play

Sudoku is played on a 9x9 grid with nine 3x3 boxes placed within the grid. Enter a digit from 1 to 9 in each table cell. A few starting numbers have been supplied for you. The digits from 1 to 9 can appear only once each in every row, column, and box in the table (diagonals don't count). Every Sudoku puzzle has a unique solution.

Good luck!

Akari
Divide by Box
Fillomino
Hashiwokakero
Heyawake
Hitori
Kakuro
Katagaku
Masugo
Masyu
Nonogram
Oekaki Logic
Shikaku
Sudoku
Suhai
Super Sudoku
Tenketsu
Tentai Show
Wordoku
Yajilin

The Lyman Hall Theater

Coming Up at the Lyman Hall Theater

February will be another banner month at the Lyman Hall Theatre with three performances of the Tony Award winning musical, *West Side Story* by the Broadway Touring Company. Tickets are going fast, so order yours today.

Celebrate Valentine's Day with the Chamberlain Symphony and their special selection of classical music for lovers. Later that week, exercise your mind by attending the Charles Dickens classic, *The Mystery of Edwin Drood*. Can you solve Dickens' unfinished mystery?

Jazz lovers have a lot to celebrate in February with a visit from the *Jazz Masters* on February 21st, and then on February 24th, enjoy the music of The Duke with an *Ellington Tribute* performed by the Jazz Company of Kansas City.

Pins, bottles, plates, and chairs are flying at the Chamberlain Civic Center in February. The *Taiwan Acrobats* return on February 2nd with another amazing performance. We close out the month with a visit from the *Madtown Jugglers* and their unique blend of comedy, juggling, and madness.

Enjoy a classical brunch every Sunday in February with music provided by the *Carson Quartet*. Seating is limited, so please order your table in advance.

February 2018 Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
28 Carson Quartet 1 pm $12	**29** Harlem Choir 8 pm $18/$24/$32	**30**	**31**	**1**	**2** Taiwan Acrobats 8 pm $24/$32/$48	**3** Joey Gallway 8 pm $24/$32/$48
4 Carson Quartet 1 pm $12	**5**	**6** Ralph Williams 8 pm $24/$36/$42	**7**	**8** West Side Story 7 pm $36/$48/$64	**9** West Side Story 7 pm $36/$48/$64	**10** West Side Story 7 pm $36/$48/$64
11 Carson Quartet 1 pm $12	**12**	**13**	**14** Chamberlain Symphony 8 pm $18/$24/$32	**15**	**16** Edwin Drood 8 pm $36/$48/$58	**17** Edwin Drood 8 pm $36/$48/$58
18 Carson Quartet 1 pm $12	**19**	**20**	**21** Jazz Masters 8 pm $18/$24/$32	**22**	**23** The Yearling 7 pm $12/$18/$24	**24** An Ellington Tribute 8 pm $24/$38/$48
25 Carson Quartet 1 pm $12	**26**	**27**	**28** Madtown Jugglers 8 pm $12/$16/$20	**1** Othello 8 pm $24/$36/$48	**2** Othello 8 pm $24/$36/$48	**3** Othello 8 pm $24/$36/$48

The Lyman Hall Theater
414 Leeward Drive
Brookhaven, GA 30319

Office: (404) 555 - 4140
Box Office: (404) 555 - 4144

Hamilton Conference Center

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Reservations for Conference Rooms
Tuesday, April 10

	Morning								Noon		Afternoon							
Room	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30
Sunrise Room	Marriage Encounter								Marriage Encounter Luncheon						Marriage Encounter Talks			
Mountain View Room	Breakfast Club of Ohio						Ohio Conference of Librarians						Ohio Book Resale Setup					
Arbor Hall	Computer Expo Set Up										Computer Expo Opening Session							
Mitchell Theater															Youth Theatre			
Gold Room			The Tompkins Group		Pearson Planning								Mothers of Multiples			Teen Connection		
Blue Room			Retirement Planning		The Senior Group				Senior Luncheon		Senior Classes					Tutoring		
Green Room			Drivers' Ed				Movie Club									Tutoring		

To reserve a room, please contact Yancy Inwe at extension 388 or by e-mail at yancyinwe@hconfcenter.org. Reservations should be made at least 48 hours in advance.

Cancellations require 24 hour notice. Room deposits will not be returned for cancellations within 24 hours of the scheduled event.

Sunrise Room	Maximum Capacity: 80
Moutain View Room	Maximum Capacity: 150
Arbor Hall	Maximum Capacity: 190
Mitchell Theatre	Maximum Capacity: 120
Gold Room	Maximum Capacity: 40
Blue Room	Maximum Capacity: 30
Green Room	Maximum Capacity: 55