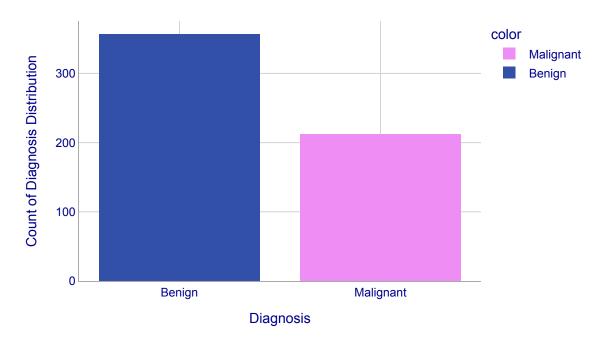
#### Distribution of Diagnosis



# Correlation Heatmap

fractal dimension worst	-0.03	0.32	0.01	0.12	0.05	0.00	0.50	0.69	0.51	0.37	0.44	0.77	0.05	-0.05	0.09	0.02	0.10	0.59	0.44	0.31	0.08	0.59	0.09	0.22	0.14	0.08	0.62	0.81	0.69	0.51	0.54	1.00
symmetry worst												_		-0.13	0.11	0.07	-0.11	0.28	0.20	0.14	0.39	0.11	0.24	0.23	0.27	0.21	0.49	0.61	0.53	0.50	1.00	0.54
concave points_worst			_					0.82						-0.12						0.60		0.22	0.79		0.82	0.75	0.55	0.80	0.86	1.00	0.50	0.51
concavity worst								0.82	0.88	0.75	0.43	0.35	0.38	-0.07	0.42	0.39	-0.06	0.64	0.66	0.55	0.04	0.38	0.57	0.37	0.62	0.54	0.52	0.89	1.00	0.86	0.53	0.69
compactness_worst	0.00	0.59	0.41	0.28	0.46	0.39	0.47	0.87	0.75	0.67	0.47	0.46	0.29	-0.09	0.34	0.28	-0.06	0.68	0.48	0.45	0.06	0.39	0.48	0.36	0.53	0.44	0.57	1.00	0.89	0.80	0.61	0.81
smoothness_worst	0.01	0.42	0.12	0.08	0.15	0.12	0.81	0.57	0.45	0.45	0.43	0.50	0.14	-0.07	0.13	0.13	0.31	0.23	0.17	0.22	-0.01	0.17	0.22	0.23	0.24	0.21	1.00	0.57	0.52	0.55	0.49	0.62
area_worst	0.11	0.73	0.94	0.34	0.94	0.96	0.21	0.51	0.68	0.81	0.18	-0.23	0.75	-0.08	0.73	0.81	-0.18	0.20	0.19	0.34	-0.11	-0.02	0.98	0.35	0.98	1.00	0.21	0.44	0.54	0.75	0.21	0.08
perimeter_worst	0.08	0.78	0.97	0.36	0.97	0.96	0.24	0.59	0.73	0.86	0.22	-0.21	0.72	-0.10	0.72	0.76	-0.22	0.26	0.23	0.39	-0.10	0.00	0.99	0.37	1.00	0.98	0.24	0.53	0.62	0.82	0.27	0.14
texture_worst	0.06	0.46	0.30	0.91	0.30	0.29	0.04	0.25	0.30	0.29	0.09	-0.05	0.19	0.41	0.20	0.20	-0.07	0.14	0.10	0.09	-0.08	0.00	0.36	1.00	0.37	0.35	0.23	0.36	0.37	0.36	0.23	0.22
radius_worst	0.08	0.78	0.97	0.35	0.97	0.96	0.21	0.54	0.69	0.83	0.19	-0.25	0.72	-0.11	0.70	0.76	-0.23	0.20	0.19	0.36	-0.13	-0.04	1.00	0.36	0.99	0.98	0.22	0.48	0.57	0.79	0.24	0.09
fractal_dimension_se	0.03	0.08	-0.04	0.05	-0.01	-0.02	0.28	0.51	0.45	0.26	0.33	0.69	0.23	0.28	0.24	0.13	0.43	0.80	0.73	0.61	0.37	1.00	-0.04	0.00	0.00	-0.02	0.17	0.39	0.38	0.22	0.11	0.59
symmetry_se	-0.02	-0.01	-0.10	0.01	-0.08	-0.07	0.20	0.23	0.18	0.10	0.45	0.35	0.24	0.41	0.27	0.13	0.41	0.39	0.31	0.31	1.00	0.37	-0.13	-0.08	-0.10	-0.11	-0.01	0.06	0.04	-0.03	0.39	0.08
concave points_se	0.08	0.41	0.38	0.16	0.41	0.37	0.38	0.64	0.68	0.62	0.39	0.34	0.51	0.23	0.56	0.42	0.33	0.74	0.77	1.00	0.31	0.61	0.36	0.09	0.39	0.34	0.22	0.45	0.55	0.60	0.14	0.31
concavity_se	0.06	0.25	0.19	0.14	0.23	0.21	0.25	0.57	0.69	0.44	0.34	0.45	0.33	0.19	0.36	0.27	0.27	0.80	1.00	0.77	0.31	0.73	0.19	0.10	0.23	0.19	0.17	0.48	0.66	0.44	0.20	0.44
compactness_se								0.74						0.23					0.80	0.74	0.39	0.80	0.20	0.14	0.26	0.20	0.23	0.68	0.64	0.48	0.28	0.59
smoothness_se	0.10	-0.07	-0.22	0.01	-0.20	-0.17	0.33	0.14	0.10	0.03	0.19	0.40	0.16	0.40	0.15	0.08	1.00	0.34	0.27	0.33	0.41	0.43	-0.23	-0.07	-0.22	-0.18	0.31	-0.06	-0.06	-0.10	-0.11	0.10
area_se	0.18	0.55	0.74	0.26	0.74	0.80	0.25	0.46	0.62	0.69	0.22	-0.09	0.95	0.11	0.94	1.00	0.08	0.28	0.27	0.42	0.13	0.13	0.76	0.20	0.76	0.81	0.13	0.28	0.39	0.54	0.07	0.02
perimeter_se	0.14	0.56	0.67	0.28	0.69	0.73	0.30	0.55	0.66	0.71	0.31	0.04	0.97	0.22	1.00	0.94	0.15	0.42	0.36	0.56	0.27	0.24	0.70	0.20	0.72	0.73	0.13	0.34	0.42	0.55	0.11	0.09
texture_se			_					0.05	0.08	0.02	0.13	0.16	0.21	1.00	0.22	0.11	0.40	0.23	0.19	0.23	0.41	0.28	-0.11	0.41	-0.10	-0.08	-0.07	-0.09	-0.07	-0.12	-0.13	-0.05
radius_se										0.70				0.21				0.36	0.33	0.51	0.24	0.23	0.72	0.19	0.72	0.75	0.14	0.29	0.38	0.53	0.09	0.05
fractal_dimension_mean	-0.05	-0.01	-0.31	-0.08	-0.26	-0.28	0.58	0.57	0.34	0.17	0.48	1.00	0.00	0.16	0.04	-0.09	0.40	0.56	0.45	0.34	0.35	0.69	-0.25	-0.05	-0.21	-0.23	0.50	0.46	0.35	0.18	0.33	0.77
symmetry_mean	-0.02	0.33	0.15	0.07	0.18	0.15	0.56	0.60	0.50	0.46	1.00	0.48	0.30	0.13	0.31	0.22	0.19	0.42	0.34	0.39	0.45	0.33	0.19	0.09	0.22	0.18	0.43	0.47	0.43	0.43	0.70	0.44
concave points_mean	0.04	0.78	0.82	0.29	0.85	0.82	0.55	0.83	0.92	1.00	0.46	0.17	0.70	0.02	0.71	0.69	0.03	0.49	0.44	0.62	0.10	0.26	0.83	0.29	0.86	0.81	0.45	0.67	0.75	0.91	0.38	0.37
concavity_mean	0.05	0.70	0.68	0.30	0.72	0.69	0.52		1.00			0.34		0.08	0.66	0.62	0.10	0.67	0.69	0.68	0.18	0.45	0.69	0.30	0.73	0.68	0.45	0.75	0.88	0.86	0.41	0.51
compactness_mean												0.57							0.57							0.51				0.82		
smoothness_mean																									0.24					0.50		
area_mean												-0.28				0.80			0.21					0.29	0.96					0.72		
perimeter_mean			_			0.99			0.72			-0.26				0.74				0.41	-0.08	-0.01	0.97	0.30	0.97	0.94	0.15		0.56		0.19	
texture_mean				_						0.29		-0.08		0.39				0.19	0.14	0.16				0.91		0.34	0.08	0.28	0.30	0.30	0.11	
· · · · · <del>-</del>	0.07		1.00	_		0.99				0.82						0.74			0.19	0.38	-0.10	-0.04		0.30		0.94	0.12	0.41		0.74	0.16	
diagnosis								0.60				-0.01							0.25				0.78					0.59			-0.04	
		0.04		0.10														_	0.06	0.08												
	₫.	diagnosis	radius_	texture <sub>.</sub>	perimeter_mean	area_	smoothness_mean	compactness_mean	concavity_mean	concave points_mean	symmetry_mean	fractal_dimension_mean	radius_	texture <sub>-</sub>	perimeter_se	area	smoothness_se	compactness_se	concavity_se	concave points_	symmetry_se	fractal_	radius_	texture <sub>.</sub>	perimeter_worst	area_worst	smoothness_worst	compactness_worst	concavity_worst	concave points_worst	symmetry_worst	fractal_dimension_worst
		nos	_s_	ure_	met	I <sub>m</sub>	ŏ	ıpac	cav	cav	me		_s	ure_	met	_se	ŏĦ	ıpac	cav	cav	ime	<u>a</u>	_s	ure_	met	ا ا	ě	ıpac	cav	cav	me	। <u>छ</u>
		Sis	_mean	<u>'</u>	er_	_mean	nes	tne	₹	e p	, T	dim	se	se	er I	(D	nes	tne	ξŦ	e p	Ϋ́	dim	worst	\ O	er I	ors	nes	tne	₹	ер	ξ	dim
			an	_mean	me	_	ı,	SS	me	oint	me	ens			se		S)	SS	se	oint	se	_dimension_se	<u>3</u> 5	worst	WOI	_	Š V	SS	Wor	oint	VO	ens
					an		nea	me	an	L's	an	sion					ŏ	se		s_se		ion			<u>18</u> .		VOC	Wo	Š	S   	St	ğ
							5	än		ıea		3								O		Se					24	rst		ors/		
										<b>ס</b>		ear										(D								<b>#</b>		ors
												_																				

1

0.8

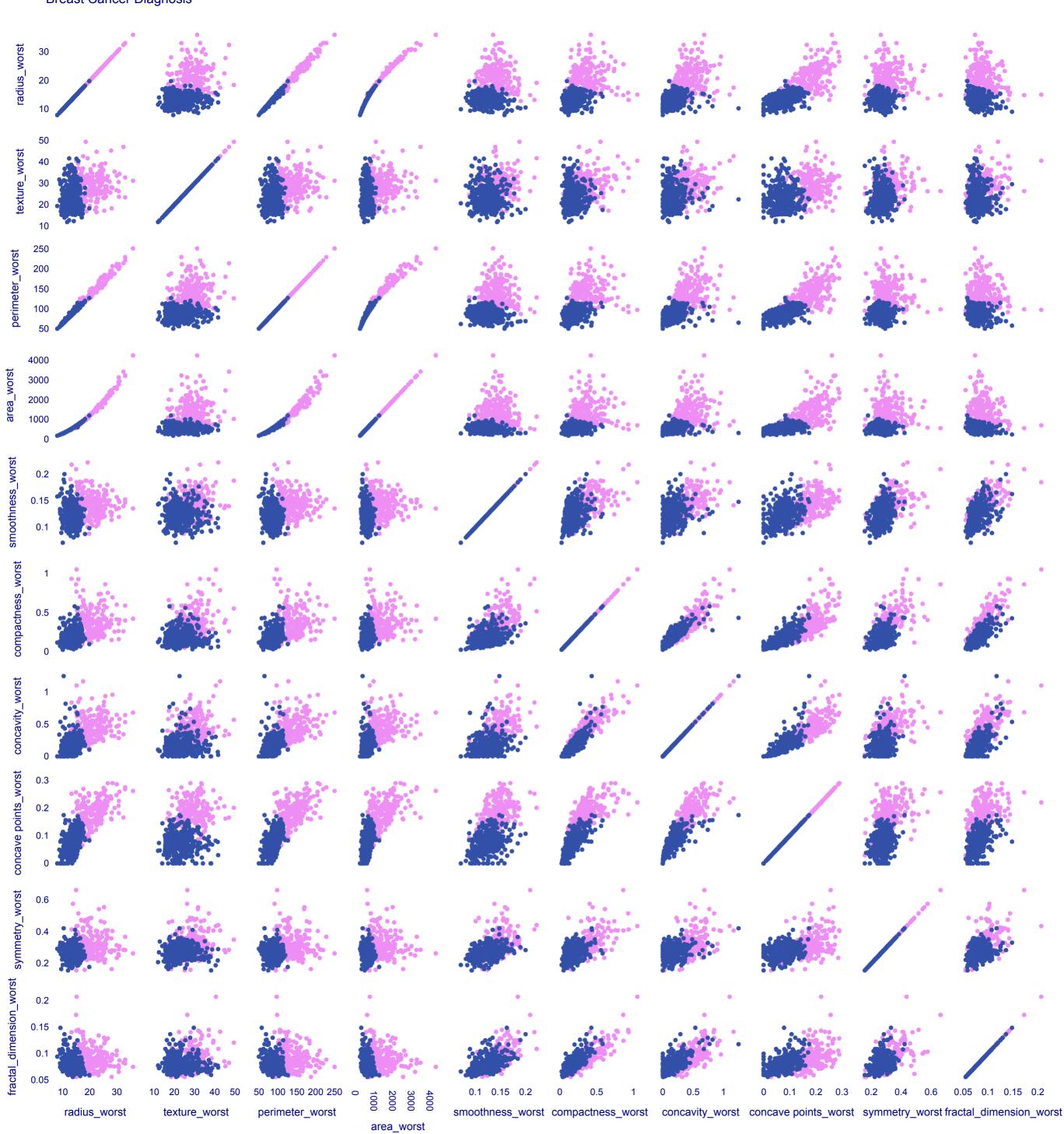
0.6

0.4

0.2

0

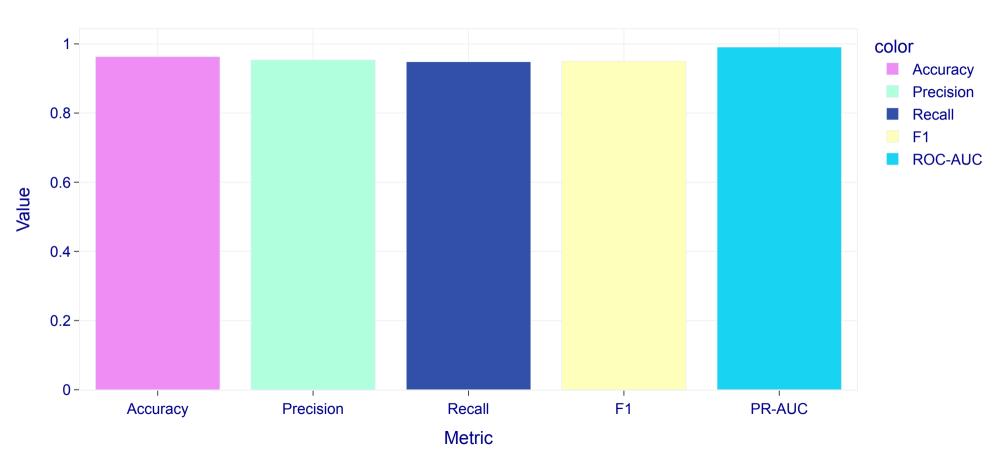
-0.2



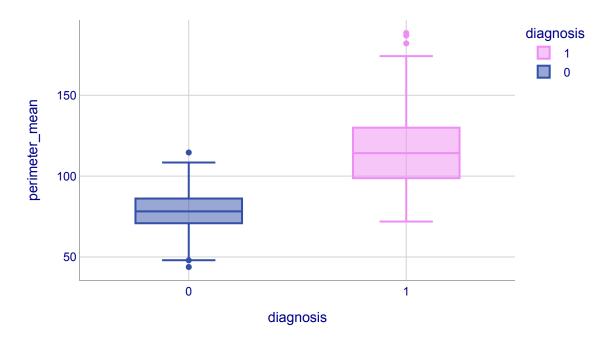
color

Malignant Benign

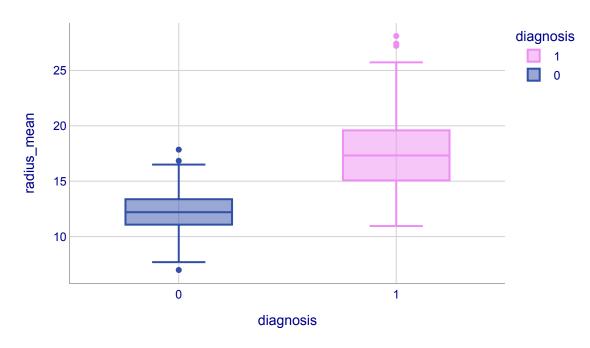
## **Model Metrics**



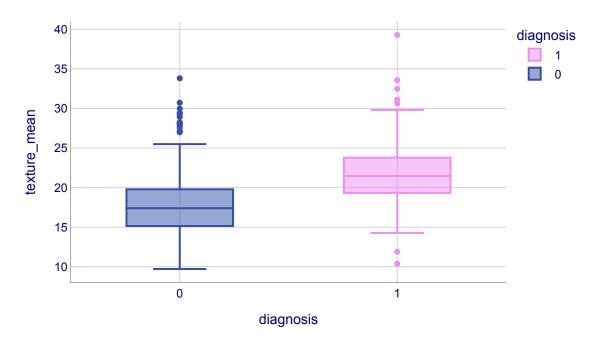
#### Box plot of perimeter\_mean by Diagnosis



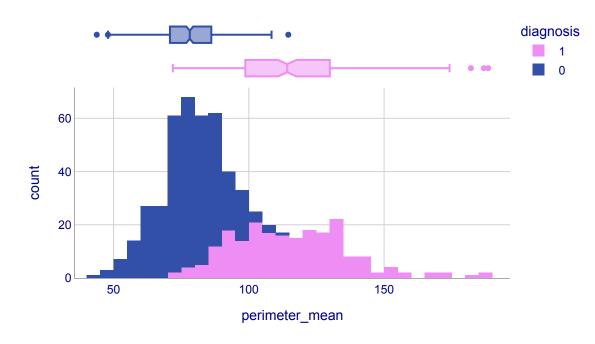
#### Box plot of radius\_mean by Diagnosis



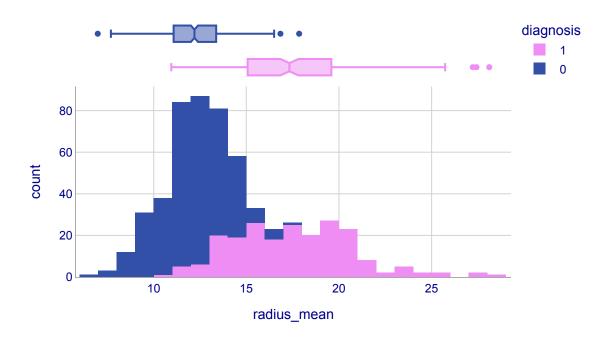
#### Box plot of texture\_mean by Diagnosis



#### Box plot of perimeter\_mean by Diagnosis



#### Box plot of radius\_mean by Diagnosis



### Feature Importance XGBoost

